

Contract No.: W912DQ-15-D-3013
Task Order No.: W912DQ18F3001

U. S. Army Corps of Engineers
Kansas City District

**Design Analysis Report
Final Design (100%)
Building Demolition**

Wolff-Alport Chemical Company
Superfund Site
Ridgewood, Queens, New York

September 24, 2018

**CDM
Smith**

Table of Contents

Acronyms	v
Section 1 Introduction	1-1
1.1 Project Overview.....	1-1
1.2 Project Organization.....	1-1
1.3 Summary of Background Information.....	1-2
1.3.1 Site Name, Location, and Description.....	1-2
1.3.2 Site History	1-3
1.3.3 Summary of Historical Investigations and Remedial Actions.....	1-4
1.3.4 Remedial Investigation.....	1-5
1.3.4.1 Building Materials.....	1-5
1.3.4.2 Soils	1-6
1.3.4.2.1 Below WACC Buildings.....	1-6
1.3.4.2.2 Former Rail Spur Area and Streets	1-7
1.3.4.2.3 308 Cooper Street.....	1-7
1.3.4.2.4 338-348 and 350 Moffat Street	1-8
1.3.4.3 Sewer	1-8
1.3.4.4 Groundwater	1-8
1.3.4.5 Exposure rate	1-9
1.3.4.6 School and Daycare	1-9
1.3.5 Physical Characteristics of the Site.....	1-9
1.3.5.1 Topography and Drainage.....	1-9
1.3.5.2 Site-Specific Geology.....	1-10
1.4 Cultural Resource Survey.....	1-10
1.5 Summary of Site Contamination.....	1-11
1.6 ROD Requirements.....	1-12
1.6.1 Remedial Action Objectives	1-12
1.6.2 Selected Remedy	1-13
1.7 Overall Strategy for Project Delivery	1-13
1.7.1 Performance-Based Design Components	1-13
1.7.2 Procurement Method/Contract Strategy.....	1-13
1.7.3 Implementation Schedule.....	1-14
1.7.4 Review of Project Requirements	1-14
Section 2 Remedial Design Summary	2-1
2.1 Overview	2-1
2.2 Pre-Mobilization Activities	2-1
2.3 Contractor Mobilization.....	2-3
2.4 Temporary Facilities/Staging Area.....	2-3
2.5 Site Security	2-3
2.6 Community Air Monitoring	2-3
2.7 Monitoring Well Decommissioning	2-4
2.8 Equipment Decontamination Facilities.....	2-4
2.9 Stormwater, Soil Erosion, and Sediment Control	2-4

2.10 Utility Disconnection and Abandonment.....	2-5
2.11 Clearing.....	2-6
2.12 Asbestos Abatement and Mercury Lamp and Thermostat Removal.....	2-6
2.13 Demolition.....	2-7
2.14 Waste Characterization, Handling and Off-site Disposal.....	2-8
2.14.1 Demolition Debris to be Disposed of as Radioactive Waste.....	2-8
2.14.2 Recycling	2-10
2.14.3 Transportation.....	2-10
2.15 Traffic Control and Haul Routes.....	2-11
2.16 Backfilling.....	2-12
2.17 Site Restoration.....	2-12
2.18 Green Remediation	2-13
2.18.1 Incorporation of Clean Diesel Fuel and Technology.....	2-13
2.18.2 Material Reuse, Reduction, and Recycling	2-14
2.18.3 Sustainable Practices	2-14
2.19 Demobilization	2-14
2.20 Cost Estimate.....	2-14
Section 3 Construction Quality Assurance/Quality Control	3-1
3.1 Construction QA/QC Organization	3-1
3.2 Construction QA/QC Activities.....	3-3
3.2.1 Review of Technical Submittals	3-3
3.2.2 Field Inspection and Testing of Materials, Equipment, and Installation	3-4
3.2.2.1 Pre-Final Inspection	3-5
3.2.2.2 Final Inspection	3-5
Section 4 Regulations, Standards, and Construction Codes.....	4-1
4.1 General Regulations.....	4-1
4.2 Health and Safety	4-1
4.3 Chemical/Radiological Quality Management Plan	4-4
4.4 Demolition/Backfill.....	4-4
4.5 Transportation and Disposal	4-5
4.6 Construction Codes, Standards and Regulations.....	4-6
4.6.1 General Construction	4-6
Section 5 Required Permits and Approvals	5-1
5.1 Introduction	5-1
5.2 New York City Department of Transportation	5-1
5.2.1 Occupation of Sidewalks and Roads.....	5-1
5.3 New York City Department of Buildings.....	5-1
5.4 New York City Department of Environmental Protection.....	5-2
5.4.1 Water and Sewer Line Disconnection.....	5-2
5.4.2 Asbestos Abatement.....	5-2
Section 6 Health and Safety Program.....	6-1
6.1 Site Description and Contamination Characterization	6-1
6.2 Hazard Assessment and Risk Analysis.....	6-1
6.3 Staff Organization, Qualifications, and Responsibilities.....	6-2

6.4 Training.....	6-2
6.5 Personal Protective Equipment.....	6-3
6.6 Medical Surveillance.....	6-3
6.7 Exposure Monitoring/Air Sampling Program.....	6-4
6.8 Heat/Cold Stress Monitoring.....	6-4
6.9 Standard Operating Procedures, Engineering Controls, and Work Practices	6-4
6.10 Site Control Measures	6-5
6.11 Personal Hygiene and Decontamination.....	6-5
6.12 Equipment Decontamination.....	6-5
6.13 Emergency Equipment and First Aid Requirements	6-5
6.14 Emergency Response and Contingency Procedures.....	6-5
6.15 Accident Prevention.....	6-5
6.16 Logs, Reports, and Recordkeeping	6-6
Section 7 List of Technical Specifications	7-1
Section 8 List of Design Drawings	8-1
Section 9 References	9-1

List of Tables

Table 1-1 Building Radiological Gamma Spectroscopy Results
Table 1-2 Remediation Goals
Table 2-1 Asbestos-Containing Materials and Quantities
Table 2-2 Inventory List of Materials Containing Mercury
Table 2-3 Waste Disposal Options Categories
Table 5-1 Permit Lists

List of Figures

Figure 1-1	Site Location Map
Figure 1-2	Site Plan
Figure 1-3a	Building Gamma Survey – Interior Wall
Figure 1-3b	Building Gamma Survey – Ceiling
Figure 1-3c	Building Gamma Survey – Roof
Figure 1-4	Site Topography and Drainage
Figure 1-5	General RA Construction Schedule
Figure 2-1	Waste Characterization and Disposal Flow Chart

Appendices

Appendix A	Radiological Scanning and Sampling Results
Appendix B	Revised Hazardous Building Materials Survey
Appendix C	March 2017 Structural Inspection Report
Appendix D	Building Demolition Material Calculations
Appendix E	Backfill Volume Calculation
Appendix F	Permit Applications

Acronyms

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µR/hr	microRoentgens per hour
Ac-228	actinium-228
ACM	Asbestos-containing material
AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
APP	Accident prevention plan
ARTS	Asbestos Reporting and Tracking System
ASSE	American Society of Safety Engineers
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
BEC	Bureau of Environmental Control
bgs	below ground surface
C&D	construction and disposal
CAMP	community air monitoring plan
CDM Smith	CDM Federal Programs Corporation
CFR	Code of Federal Regulations
cis-1,2-DCE	cis-1,2-dichloroethene
cm ²	square centimeter
CQC	contractor quality control
CVOC	chlorinated volatile organic compound
DER	Division of Environmental Remediation
DOD	United States Department of Defense
DOT	United States Department of Transportation
dpm	disintegrations per minute
EM	Engineering Manual
EPA	U.S. Environmental Protection Agency
ER	Engineering Regulation
FAR	Federal Acquisition Regulations
H&S	health and safety
HTRW	hazardous, toxic, and radioactive waste
ISOCS	In Situ Object Counting Systems
LBP	lead-based paint
LLC	limited liability corporation
NIOSH	National Institute for Occupational Safety and Health
NRC	United States Nuclear Regulatory Commission
NYC	New York City
NYCAC	New York City Administrative Code
NYCDDC	New York Department of Design and Construction
NYCDEP	New York City Department of Environmental Protection

NYCDOB	New York City Department of Buildings
NYCDOHMH	New York City Department of Health and Mental Hygiene
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
pCi/g	picocuries per gram
pCi/L	picocuries per liter
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RA	remedial action
Ra-226	radium-226
RAO	remedial action objective
RCNY	Rules of the City of New York
RD	remedial design
RG	remediation goal
RI	remedial investigation
ROD	Record of Decision
SHM	safety and health manager
SSHPP	site safety and health plan
site	Wolff-Alport Chemical Company Superfund Site
TCE	trichloroethene
Th-232	thorium-232
U-238	uranium-238
UFP-QAPP	Uniform Federal Policy Quality Assurance Project Plan
USACE	United States Army Corps of Engineers
UST	underground storage tank
WAC	waste acceptance criteria
WACC	Wolff-Alport Chemical Company

Section 1

Introduction

1.1 Project Overview

This report presents the design analysis prepared by CDM Federal Programs Corporation (CDM Smith) to achieve the requirements set forth in the U.S. Environmental Protection Agency's (EPA) September 2017 Record of Decision (ROD) (EPA 2017) addressing contaminated building materials at the Wolff-Alport Chemical Company (WACC) Superfund Site (the site) located in Ridgewood, Queens, New York. The report was prepared for the United States Army Corps of Engineers (USACE), Kansas City District, Contract No. W912DQ-15-D-3013, Task Order No. W912DQ18F3001.

1.2 Project Organization

The purpose of this design analysis report is to present the technical basis for the design of the building demolition proposed by CDM Smith to achieve the remedial action objectives (RAOs) specified in the ROD related to the building demolition.

This report contains the following sections.

- **Section 1: Introduction** – This section presents the site history and identifies the purpose and scope of this design analysis report. It also presents the overall strategy for project delivery.
- **Section 2: Remedial Design Summary** – This section provides a summary of the remedial design (RD). Major design and construction components, including site preparation, stormwater and erosion control, traffic control, building demolition, waste characterization, backfilling, waste transportation and disposal, and sitewide restoration, are detailed in this section.
- **Section 3: Construction Quality Assurance/Quality Control** – This section provides a summary of the quality assurance (QA) and quality control (QC) organization and the processes and standards that are applicable to site construction.
- **Section 4: Construction Codes, Standards, and Regulations** – This section provides a summary of the construction codes, standards, and regulations that are required to be followed during the remedial activities.
- **Section 5: Required Permits and Approvals** – This section provides a summary of the required permits and approvals that have been identified for the construction of the remedial activities.
- **Section 6: Health and Safety Program** – This section provides a summary of the health and safety (H&S) requirements on-site during the remedial activities.

- **Section 7: List of Technical Specifications** – This section provides a list of the specification sections included in the Contract Documents. These are provided under a separate cover.
- **Section 8: List of Design Drawings** – This section provides a list of the Contract Drawings for the design.
- **Section 9: References** – References cited in the report are provided in this section.

Tables, figures, and appendices are also included in the report. These materials provide additional information, summarize relevant data, and serve as the basis for design decisions. The following items are specifically noted.

- Design calculations – Demolition debris calculations and engineering assumptions are included in the appendices.
- RD drawings – The RD drawings for the remedial action (RA) are included under a separate cover. This report refers to the Contract Drawings, which include a site plan, site preparation plan, building demolition plan, site restoration plan, and civil details.

1.3 Summary of Background Information

1.3.1 Site Name, Location, and Description

The site comprises an area of radiological contamination at 1127 Irving Avenue in Ridgewood, Queens, New York on the border of Bushwick, Brooklyn. The site includes the former WACC property, a roughly triangular area of approximately 0.75 acre that is now subdivided into several commercial properties as well as adjacent areas, including streets, sidewalks, commercial and residential properties, and the sewer system where contaminants have migrated or have the potential to migrate in the future. A site location map is provided as Figure 1-1. Figure 1-2 shows the general area of the site.

The former WACC property is bound by Irving Avenue to the southwest, Cooper Avenue to the northwest, and a commercial property to the east. At present, the property is covered with contiguous structures, except along its eastern edge in an area formerly used as a rail spur. The neighborhoods surrounding the former WACC property contain light industry, commercial businesses, residences, a school, and a daycare center. An active rail line passes within 125 feet to the southeast of the property.

The former WACC property (Figure 1-2) consists of several parcels on Block 3725 which, as shown on the tax map of Queens County, include the following buildings:

Lot	Address	Description
31	NA	The former rail spur adjacent to the WACC buildings. It is fenced, covered with gravel and used as an automobile storage/parking area by the Primo Auto Body. The non-fenced portion of the former rail spur, which is not adjacent to the WACC buildings, is partially vegetated.

Lot	Address	Description
33	1133-1139 Irving Avenue	A 1-story masonry warehouse owned by Irving Unique Development, Limited Liability Corporation (LLC) and is currently unoccupied.
42	1129 Irving Avenue	A 1-story masonry building, subdivided and occupied by TerraNova Construction and Primo Auto Body. The TerraNova building is primarily used for construction but also has an office that is frequently occupied. The building housing the Primo Auto Body shop is active, with 5-10 employees typically occupying the building during the work day.
44	1127 Irving Avenue	A 1-story masonry building housing the Celtic Bike Shop, a motorcycle repair business. The building is active, with 2-5 employees typically occupying the building during the work day. This building was previously occupied by Primo Auto Body.
46	1125 Irving Avenue	A 2-story masonry and frame building housing the Jarabacoa delicatessen/grocery, office space, and three residential apartments on the second floor. A second attached one-story masonry building houses Primo Flat Fix and a former mini-all terrain vehicle shop.
48	1514 Cooper Avenue	A 1-story masonry building housing the K&M auto repair shop and office space. The building is actively used.

The sidewalk and street along Irving Avenue adjacent to the WACC buildings are typically filled with vehicles being serviced by the auto businesses. The intersection of Irving Avenue and Moffat Street (i.e., the southern corner of the WACC property) is an active area for trailer parking and unloading.

The current land use of the WACC property is primarily commercial and residential. The predominant land use in the surrounding area is residential (characterized by attached houses and apartment buildings), and the neighborhood is near areas of Brooklyn and Queens that have been under intense redevelopment pressure (primarily residential) over the past 10 years.

1.3.2 Site History

WACC operated at the property from the 1920s until 1954, importing monazite sand via rail and extracting rare earth metals from the material. Monazite sand contains approximately 6 to 8% percent or more of thorium and 0.1 to 0.3% of uranium. The acid treatment process used by WACC converted the phosphate and metal component of the monazite to aqueous species, rendering the rare earth materials extractable while dissolving the thorium and uranium in an acid, such as sulfuric and nitric acid, generating waste process liquors and tailings. This process concentrated thorium-232 (Th-232), uranium-238 (U-238), and their progeny, all of which are radioactive, in the process liquors.

During its operation, WACC occupied three structures that currently comprise Lots 42 and 44. WACC's operation included two yard areas: one between the buildings on Lot 42 and the other on the eastern end of the property at the northern end of Moffat Street. These areas were reportedly used as staging areas for monazite sands or waste tailings containing Th-232 and U-238. The waste tailings were likely spread or buried on the property. WACC likely disposed of the liquid process wastes into the sewer. According to the U.S. Department of Energy, the Atomic Energy

Commission (AEC) ordered WACC to halt sewer disposal of thorium waste in the fall of 1947. Thereafter, thorium was precipitated as thorium oxalate sludge and later sold to AEC.

1.3.3 Summary of Historical Investigations and Remedial Actions

Scoping-level radiological surveys performed by New York State Department of Environmental Conservation (NYSDEC), New York City Department of Health and Mental Hygiene (NYCDOHMH), and EPA in 2007 found radiological impacts throughout the WACC property and the nearby sewer. Follow-up investigations by the New York City Department of Design and Construction (NYCDDC) in 2009 and 2010 found waste tailings consisting of black or gray ash-like material containing elevated Th-232 concentrations beneath the WACC property buildings, adjacent sidewalks, and asphalt surfaces of Irving Avenue and Moffat Street and in the surface soils of the former rail spur (Louis Berger and Associates 2010). During the NYCDDC investigation, elevated levels of thoron and radon gas were detected in the deli basement.

EPA conducted a search for single gas entry points in buildings at the WACC property and in the daycare center and school located nearby during 2010, 2011, and 2012 (EPA 2013). No gas entry points were identified in TerraNova, Primo Auto Body, or Celtic Bike Shop (EPA 2013). No indications of elevated levels of thoron were found in the first and second floors of the Jarabacoa deli. However, the average thoron concentration in the basement of the deli was found to be 13.5 picocuries per liter (pCi/L) from 2.5 hour long combined measurements collected using a RAD7 instrument. The average background thoron concentration in air in the area adjacent to the site was found to be 0.1 pCi/L (Weston Solutions 2013). The screening criteria for thoron in outdoor air developed for the RI was 0.1 pCi/L. All results at the daycare and school were found to be within the normal range of background, except a single location in a school basement crawl space where radon and thoron concentrations were found to be approximately 17.9 and 24.4 pCi/L, respectively. Radon and thoron gas were determined to be emanating from a hole in the concrete floor of the crawl space. The hole was sealed with a concrete plug, and subsequent testing found radon and thoron concentrations had dropped to within normal background ranges.

In February 2012, the Agency for Toxic Substances and Disease Registry (ATSDR) issued a Health Consultation (ATSDR 2012) that noted that exposure to the residual radioactive contamination at the site may pose a health threat under certain long-term exposure scenarios. Based on the ATSDR document, EPA prepared a removal site evaluation for the site in August 2012 to determine whether an immediate response action (i.e., a removal action) was necessary. In September 2012, EPA collected gamma radiation exposure rate measurements and thoron and radon concentration measurements on and around the perimeter of the suspected source area and at background locations. The gamma radiation exposure rate measurements identified hot spots inside the on-site buildings, along the former rail spur, and along the sidewalks and streets adjacent to the former facility and elevated radon concentrations in two of the former WACC property businesses.

In July 2013, EPA, New York State Department of Health (NYSDOH), and NYCDOHMH conducted a radiological assessment of the neighborhood within a 1/2-mile radius of the site (NYSDOH et al. 2014). The data collected during this assessment indicated that there is no unacceptable exposure to the surrounding community from radiological contaminants located at the site.

In 2014, ATSDR performed a follow-up health consultation to evaluate new data collected in a time study of workers, better characterization of the exposure data, improved radon and thoron analysis, and a study of materials that can be used as adequate radiation shielding (ATSDR 2014). The follow-up health consultation concluded the following: (1) radiation exposure levels, adjusted for time spent on tasks without appropriate shielding, exceed ATSDR-established recommended levels; (2) the results of the shielding study showed that, with appropriate shielding in place, the radiation exposures can be greatly reduced significantly; and (3) levels of radon in some locations exceed the recommended EPA limit for residential areas and the applicable limits of Occupational Safety and Health Administration (OSHA).

Based on the 2012 and 2014 ATSDR health consultation, EPA conducted a removal action between October 2012 and April 2014 (Weston Solutions Inc. 2016), which consisted of a gamma radiation assessment and radon sampling at the site; installation of a radon mitigation system in one former WACC property building where radon concentrations exceeded EPA's guidance level of 4 pCi/L; and installation of lead, steel, and concrete shielding in certain areas of the site. Gamma exposure rates in areas where shielding was placed were reduced between 60 and 95% based on a comparison of pre- and post-shielding gamma radiation surveys. Shielding is shown on the Contract Drawings.

1.3.4 Remedial Investigation

The site was included on the National Priorities List on May 12, 2014. EPA conducted field investigations from September 2015 to March 2017 and completed the remedial investigation (RI) and feasibility study reports in July 2017 (CDM Smith 2017a and 2017b).

The nature and extent of contamination in site media developed during the RI was assessed by comparing sample results to the screening criteria developed during the RI (CDM Smith 2017a). The monazite sands brought to the property for processing contained Th-232 and U-238. The processes at Wolff-Alport concentrated and released Th-232 and U-238 into the environment. However, because the minimum detectable activity using gamma spectroscopy for U-238 is high, gamma spectroscopy results are not used as a first line indicator for U-238. Therefore, radium-226 (Ra-226) is used to indicate U-238 levels, assuming the two isotopes are in equilibrium because Ra-226 is the decay progeny of U-238. Therefore, Th-232 in combination with Ra-226 are used to determine the nature and extent of contamination associated with WACC, and the primary contaminants of concern at the site are the radioactive isotopes Th-232 and Ra-226. The following sections present a discussion of the WACC property contamination.

1.3.4.1 Building Materials

Gamma surveys to measure gamma radiation were performed inside the buildings at the WACC property, including Lot 33 (warehouse), Lot 42 (Terra Nova and Primo Auto Body), Lot 44 (Celtic Bike Shop), Lot 46 (Jarabacoa Deli and Primo Flat Fix), and Lot 48 (K&M Auto Repair), to obtain gamma radiation counts per minute for the building surfaces. The gamma count rates provide an indication of the presence of elevated areas of radioactivity. This survey method is useful in identifying locations likely to have contaminants embedded or on the surface of building materials. Gamma counts from wall, ceiling, and roof surveys in ranges of multiples of background are presented on Figures 1-3a, 1-3b, and 1-3c, respectively.

Locations to conduct additional alpha/beta measurements, wipe sampling, and building material core sampling were selected based on the results of the gamma surveys conducted throughout the WACC buildings. The alpha/beta results were compared to the acceptance criterion for Th-232 from United States Nuclear Regulatory Commission's (NRC's) Regulatory Guide 1.86 (1974) on decommissioning release limits, 1,000 disintegrations per minute (dpm)/square centimeter (cm^2), to determine what areas contained elevated alpha.

Direct alpha/beta measurements were greater than 1,000 dpm/ cm^2 at three locations: Lot 46 along the eastern wall near the south corner in the Jarabacoa Deli basement, Lot 44 in the Celtic Bike Shop, and Lot 42 in the Primo Auto Body shop. All wipe samples collected at these locations showed no removable contamination. The lack of removable contamination provides assurance that workers are not inhaling or ingesting contaminant particulates when brushing up against/contacting the brick surfaces.

At each location selected for direct alpha/beta measurements, samples of the building materials were collected and sent to a subcontract laboratory for gamma spectroscopy analysis to determine the radionuclide present and their respective concentrations within the sampled material. Sample locations are shown on Figure 1-3a, and sample results are presented on Table 1-1.

The results show that contamination remains in the building structures at the WACC property, primarily in the buildings that previously operated the kiln/vat in which monazite sands processing took place (Lots 42 and 44), in the basement of the deli (Lot 46), and to a lesser extent, in the warehouse on Lot 33 constructed above the former yard area. Contaminants are primarily embedded in the building structure with the highest concentration of Th-232 at 415.2 picocuries per gram (pCi/g) and Ra-226 at 44.2 pCi/g on a sample of brick from Lot 44. The brick sample collected from Lot 33 contained Th-232 concentrations slightly above the screening criterion (1.2 pCi/g), with a concentration of 1.7 pCi/g. Radiological sampling and scanning results and drawings from the RI are included in Appendix A

Asbestos-containing material (ACM), lead-based paint (LBP), and other suspect hazardous materials were also found in the WACC building structures and were comparable to a building of its age. A hazardous building material survey report is included in Appendix B.

1.3.4.2 Soils

The soil RI investigation included gamma scan surveys, soil boring downhole gamma scans, and soil sampling to delineate the impacted soils at the WACC property and potentially impacted nearby properties. Soil sampling was conducted for non-radiological parameters to determine if the site had other contamination. The soil contamination discussion included herein includes only those soils that the RA Contractor may encounter.

1.3.4.2.1 Below WACC Buildings

Radiological contamination under the WACC property buildings was encountered during previous investigations and the RI investigation. The RI screening criteria for Th-232 and Ra-226 was 1.2 and 0.9 pCi/g, respectively. Surficial contamination (0 to 2 feet below ground surface [bgs]) was found below the building on Lot 33 with a maximum Th-232 concentration of 77.4 pCi/g. The associated Ra-226 concentration for this sample was 20.7 pCi/g.

Deep contamination was found below the buildings on Lot 42 (Primo Auto Body) and Lot 44 (Celtic Bike Shop). The deep contamination extends to a depth of 28 feet bgs under Lot 44 and down to 24 feet bgs under Lot 42. The highest Th-232 concentrations observed during the RI were found in this area, with maximum concentrations of 760 and 533.8 pCi/g found below Lot 42 at 6 to 8 feet bgs and 10 to 12 feet bgs, respectively. The associated Ra-226 concentrations for these samples were 1.5 and 2.4 pCi/g, respectively.

Concentrations of benzo(a)pyrene and polychlorinated biphenyls (PCBs) (Aroclor 1260) were found above their respective screening criterion of 16 and 240 micrograms per kilogram ($\mu\text{g/kg}$), respectively. Several metals were also found above their screening criteria but were mostly comparable to background, indicating that the metals are likely associated with the urban fill or naturally occurring in glacial soils.

1.3.4.2.2 Former Rail Spur Area and Streets

Surficial radiological contamination was observed in the former rail spur area and in the southeastern corner of Lot 31/northern area of 350 Moffat Street (area adjacent to the Irving Avenue/Moffat Street intersection). Soil borings advanced in the southern portion of Lot 31 adjacent to the Irving Avenue/Moffat Street intersection showed elevated levels of Th-232 in surficial soil samples. The maximum concentration was 19.3 pCi/g.

Irving Avenue east of the Irving Avenue/Moffat Street intersection likely contains deep contamination associated with disposal of contaminated process liquors in the sewer line in this area that may have leaked to the surrounding soils. One sample collected during the RI had a Th-232 concentration of 5 pCi/g and a Ra-226 concentration of 1.2 pCi/g. Two previous sample locations contained deeper contamination from 16 to 20 feet bgs.

The Irving Avenue/Moffat Street intersection had the highest gamma scan readings outside of the WACC property. Deeper contamination down to 8 feet bgs was observed at the intersection and the northern portion of Moffat Street at a concentration of 3.3 pCi/g of Th-232 and 2.3 pCi/g of Ra-226. Soil samples from a soil boring advanced in the middle of the intersection of the two streets (SB-50) found 209.9 pCi/g of Th-232 and 38.7 pCi/g of Ra-226 in the top 1 foot of soil.

Levels of contamination on Moffat Street moving south away from the WACC property generally decreased. Elevated concentrations of Th-232 and Ra-226 were observed in mostly surficial samples collected from 0 to 2 feet bgs. Two soil borings located in gamma reading hotspots had elevated surficial Th-232 at 28.55 and 59.4 pCi/g and Ra-226 at 5.5 and 11.1 pCi/g, respectively. Soil observations at these locations showed potential waste tailings in the top 1 foot of soil. Approximately 40 feet south from the hotspot on Moffat Street, gamma readings drop to just above or within background levels.

1.3.4.2.3 308 Cooper Street

A gamma walk-over survey at 308 Cooper Street showed most of the activity at this property is only slightly above background levels, except the northeastern corner of the property, which had readings at least twice background levels. Results from a boring in the eastern corner of this property showed Th-232 and Ra-226 at maximum concentrations of 6.4 and 1.7 pCi/g, respectively, in the surficial soil sample.

1.3.4.2.4 338-348 and 350 Moffat Street

Gamma readings at this property were mostly within background levels. Soil samples collected from borings through the floors of the property buildings showed slightly elevated concentrations but less than two times the background of both Th-232 and Ra-226 from 0 to 10 feet bgs. The maximum concentrations of Th-232 and Ra-226 were 2.4 and 1.8 pCi/g, respectively.

Results for soil samples collected outside the building footprint found slightly elevated Th-232 concentrations but less than two times the screening criterion in a majority of the soil samples. However, toward the northeast corner of the building adjacent to the southern corner of Lot 31, soil gamma readings were elevated, with counts greater than four times background. A soil sample collected from 0 to 2 feet bgs in this area contained Th-232 at 4.9 pCi/g and Ra-226 at 3.2 pCi/g.

1.3.4.3 Sewer

The RI sewer investigation found significant radionuclide contamination present in the combined sewer system originating at the WACC property. Gamma count measurements are significantly elevated in the manholes south of the WACC buildings on Irving Avenue where process liquors containing thorium were likely discharged. The elevated gamma counts (>20 times background) continue in the sewer line and manholes on Irving Avenue for approximately two blocks. Radionuclide contamination within the pipes and the manholes is present in sediments and construction materials in the sewer manholes near the WACC property. The maximum radionuclide concentrations in sewer materials were found in the manhole located near the intersection of Irving Avenue and Cooper Avenue, with Th-232 at 2,536.2 pCi/g and Ra-226 at 163.1 pCi/g. The maximum Th-232 concentration in sewer sediments was observed in the manhole located south of the WACC property on Irving Avenue, with Th-232 at 1,218.1 pCi/g and Ra-226 at 45.9 pCi/g.

Gamma scan levels were found to generally drop to four times background at the intersection of Irving Avenue and Schaeffer Street and drop to background at the intersection of Irving Avenue and Eldert Street, with sporadic occurrences of gamma levels above four times background continuing in the sewer along Halsey Street to Wyckoff Avenue.

Radionuclide contamination appeared limited to the interior of the sewers because soil borings installed adjacent to the sewer lines found only limited radionuclide contamination. A data gap does remain because the bedding material below the sewers may be contaminated, as the fiberscope survey confirmed that there are breaks in the pipeline along Irving Avenue.

Sediment radionuclide concentrations at the Newtown Creek outfall were elevated, with a maximum concentration of 56 pCi/g of Th-232 from 5 to 6 feet bgs. Samples with elevated concentrations were limited to the area immediately adjacent to the outfall discharge.

1.3.4.4 Groundwater

The data collected indicated that the groundwater at the WACC site is not impacted by radionuclides.

Chlorinated volatile organic compounds (CVOCs), including tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE), exceeded screening criteria in the groundwater at each of the six monitoring wells, including an upgradient well. The screening

criteria for cis-1,2-DCE and PCE was 5 micrograms per liter ($\mu\text{g/L}$) and was based on the NYSDEC standards and guidance values for Class GA groundwater. The screening criterion for TCE was $0.49 \mu\text{g/L}$ and was based on the EPA Regional Screening Levels for tap water. Concentrations for cis-1,2-DCE ranged from 0.41 to $25 \mu\text{g/L}$. Concentrations for TCE ranged from 0.95 to $9 \mu\text{g/L}$. Concentrations for PCE ranged from 72 to $960 \mu\text{g/L}$. The RI concluded that CVOCs in groundwater at the site are likely from an upgradient source.

1.3.4.5 Exposure rate

Gamma exposure rate surveys conducted during the RI confirmed the results from the previous gamma exposure rate surveys conducted within the WACC buildings, on sidewalks, and on the streets near the WACC property. Exposure rates remain above background levels throughout each of these areas but were within the background range outside of a few blocks from the WACC property. The maximum gamma exposure rates observed were collected on the roadway of Irving Avenue, one near the sidewalk curb and one in the middle of the street, south of the WACC property at 220 and 338 microRoentgens per hour ($\mu\text{R/hr}$).

1.3.4.6 School and Daycare

RI sampling performed at the school and daycare did not indicate contamination due to the WACC processes as the data generated was all below or slightly above the RI screening criteria. Results included:

- School – Results of long-term radon and thoron sampling were below the RI screening criteria. Soil results for Th-232 and Ra-226 from samples collected below the school were below background concentrations for soil.
- Daycare – Short-term radon concentrations collected at the daycare were either below or within 0.2 pCi/L of the screening criteria. The 7-day continuous air surveys for radon were below the RI screening criterion, and the 5-day continuous air surveys for thoron were slightly above the RI screening criterion. Soil results for samples collected from underneath the daycare were below background concentrations for soil.

Gamma exposure rates were also collected from within the school and daycare and were all within or below the background observed for the neighborhood.

1.3.5 Physical Characteristics of the Site

1.3.5.1 Topography and Drainage

The WACC property is at an elevation of approximately 70 feet above mean sea level, and the ground surface in the area generally slopes gently to the southwest. The eastern edge of the site is adjacent to an elevated train line parallel to Moffat Street. The ground surface rises sharply toward the train line and continues to rise to the cemetery east of the site to elevations as high as 160 feet above mean sea level. The cemetery areas are elevated as they are in glacial terminal moraine deposits.

The site is in a highly urbanized area where infiltration of precipitation is largely restricted due to the high percentage of ground surface covered by pavement and buildings. The large cemetery just east of the site is mostly unpaved and allows more infiltration of precipitation than

surrounding areas. Storm water in the majority of the site area is directed into catch basins that connect to a combined sewer system (shown on Figure 1-4). The WACC property is located at the head of a branch of the sewer system. The sewer flows away from the property to the west down Irving Avenue before turning on Halsey Street and joining larger sewers on Wyckoff Avenue. During large storms, these sewers discharge directly into the East Branch of Newtown Creek, which is approximately 1.9 miles from the WACC property.

1.3.5.2 Site-Specific Geology

The site is located along the western edge of Queens County on the Brooklyn border. Drilling advanced into the upper portion of the aquifer in this area and encountered two types of unconsolidated material: fill and Upper Glacial Aquifer deposits (till and outwash).

Fill

Fill near the WACC property is typically 5 to 15 feet thick and generally characterized by the presence of man-made materials (brick, coal, various building materials) intermixed with silt, sands, and gravels. The distinction between fill and the underlying glacial material was difficult when man-made debris was not present in the soil. This is representative of regrading of native materials within the area.

Much of the upper layers of the fill in borings at the WACC property and in some borings to the south on Moffat Street was a black, gray, and/or white cinder or ash-like material. This material is likely waste tailings described in previous reports and was found between 0 and 4 feet bgs near the WACC property and between 0 and 6 feet bgs along Moffat Street. This material corresponds well with intervals of elevated downhole gamma readings collected at the borings.

Upper Glacial Aquifer Deposits

Soil borings at the site generally indicate the presence of Upper Glacial Aquifer soils extending from the bottom of fill (0 to 15 feet bgs) to beyond the deepest boring performed at the site (75 feet bgs). The upper portion of the glacial deposits (down to approximately 25 to 37 feet bgs) is made up of glacial till, which is yellowish brown dense silty sand and gravel. The material underlying the glacial till is glacial outwash, slightly more uniform and coarse in texture than the till and extends from the bottom of the till to at least 75 feet bgs (total depth of exploration at the site).

Based on ground surface topography and the top of geologic surface contour maps of the various units (discussed above) created by Soren (1978), the interpreted total thickness of the Upper Glacial Aquifer soils in the site area is about 170 feet. The Magothy Formation is absent at the site, and the Upper Glacial Aquifer is underlain by the Gardiners Clay (approximately 50 feet thick), which is in turn underlain by the Raritan Clay (approximately 130 feet thick). The Lloyd aquifer is approximately 40 feet thick, and the bedrock surface is expected to be encountered at a depth of about 390 feet bgs, although some sources have estimated this depth to be closer to 450 feet bgs.

1.4 Cultural Resource Survey

Richard Grubb & Associates, Inc performed a Phase 1A Literature Search and Archaeological Sensitivity Assessment for the WACC property on April 5, 2018 to examine the current conditions of the project area and identify any areas of archaeological potential. The results of the Phase 1A survey indicate that the Area of Potential Effects possesses low archaeological sensitivity for both

prehistoric and historical archaeological resources. No further work is recommended (Richard Grubb and Associates 2018).

1.5 Summary of Site Contamination

Buildings

Radionuclide contamination remains in the building structures at the WACC property, primarily in the buildings that previously operated as the kiln/vat in which monazite sand processing took place and the storage yard where sands were loaded into the kiln-vat (Lots 42 and 44), in the basement of the deli (Lot 46), and to a lesser extent, in the warehouse on Lot 33 that was constructed above a former yard area.

ACM, LBP, and other suspect hazardous materials were found in the WACC building structures.

Soils

Under the WACC buildings, radiological contamination extends down to a depth of 28 feet bgs under Lot 44, the former kiln/vat building, and down to 24 feet bgs under Lot 42, the former yard where the monazite sands were loaded into the kiln/vat building for processing.

There is widespread surficial radiological contamination related to storage or filling of tailings or monazite sands and/or surface runoff/erosion from those areas. Surficial contamination was observed in the former rail spur area, at the intersection of Irving Avenue and Moffat Street, the northern portion of Moffat Street and the eastern portion of Irving Avenue, and in the southeastern corner of Lot 31/northern part of 350 Moffat (area adjacent to the Moffat/Irving intersection).

PAH contamination was found throughout the shallow soils at the WACC property. PAHs found as deep as 7 feet bgs may be related to former underground storage tanks (USTs) or use of the area to store demolished cars. Similar concentrations were also found at the nearby property, 308 Cooper Street. Elevated concentrations of PCBs were found at the WACC property. PCBs in the shallow soils may also be related to USTs or a sump below the building in Lot 33. Arsenic and iron concentrations were similar at all depths within the urban fill below the site and within the range of background levels, indicating the metals are likely associated with urban fill.

Sewer

Radionuclide contamination within the combined sewer system is present near the WACC property in sediments/sludge and materials comprising the sewer pipes and manholes. Radionuclide contamination is significantly elevated in the manholes on Irving Avenue adjacent to the WACC buildings where process liquors containing high concentrations of radionuclides were likely discharged. The elevated gamma levels (>20 times background) continue in the sewer line and manholes on Irving Avenue for approximately two blocks to Decatur Street.

Gamma counts within the combined sewer system generally drop to four times background at the intersection of Irving Avenue and Schaeffer Street and drop to background at the intersection of Irving Avenue and Eldert Street, with sporadic occurrences of gamma levels above four times background continuing in the sewer along Halsey Street to Wyckoff Avenue.

Groundwater

CVOCs, including PCE, TCE, and cis-1,2-DCE, are above the NYSDEC standards and guidance values for Class GA groundwater. The groundwater is not impacted by radionuclides.

Exposure Rate

Exposure rates remain above background levels within the WACC buildings, on sidewalks, and on the streets near the WACC property but were within the background range outside of a few blocks from the WACC property. The maximum gamma exposure rates observed were collected on Irving Avenue south of the WACC property at 220 $\mu\text{R/hr}$ near the sidewalk curb and 338 $\mu\text{R/hr}$ in the middle of the street. These readings were taken at waist height or approximately 3 feet above the ground surface.

Air

Air sampling conducted prior to radiation mitigation activities in 2012 and 2013 (installation of a radon mitigation system followed by radiation shielding) found the highest levels of air contamination at Lots 31, 42, 44, and 46 where the majority of the WACC processing activities took place. The highest concentration of thoron in air was detected on Lot 31 in outdoor air. Concentrations of radon previously detected at the WACC property decreased following radon mitigation activities completed at Lots 42 and 44. The maximum radon concentration following the mitigation activities was observed in the TerraNova portion of Lot 42 at a concentration of 1.5 pCi/L. However, radon levels in the three buildings greater than the background radon concentration (0.5 pCi/L) were still observed. Radon results at the Jarabacoa deli ranged from 1.1 to 3.5 pCi/L.

1.6 ROD Requirements

1.6.1 Remedial Action Objectives

Remedial action objectives (RAOs) set forth in the ROD are specific objectives to protect human health and the environment. These objectives were based on applicable or relevant and appropriate requirements and site-specific risk-based levels.

The RAOs for the site are:

- Reduce or eliminate human exposure via inhalation of radon and thoron, incidental ingestion, dermal adsorption, and external exposure to radiological contamination (Ra-226 and Th-232) that may be present within the former WACC property buildings to levels protective of current and anticipated future use by preventing exposure to contaminant levels above remediation goals (RGs);
- Reduce or eliminate the human exposure threat via inhalation, incidental ingestion, dermal adsorption, and external exposure to contaminated Site soils and solids (i.e., sewer pipe and sediments/sludge in sewers) to levels protective of current and anticipated future land use by preventing exposure to benzo(a)pyrene, Aroclor-1260, Ra-226, and Th-232 concentrations above RGs; and
- Prevent/minimize the migration of site contaminants off-site through surface runoff, dust particulate migration, and combined sewer overflow discharge.

Table 1-2 lists the RGs for the site.

In achieving the RAOs for the site, EPA will also rely on an “as low as reasonably achievable” (ALARA) (10 Code of Federal Regulations [CFR] 20.1003) principle. An ALARA approach will be implemented during the remediation of the Site.

1.6.2 Selected Remedy

The major components of the ROD-selected remedy related to this RD are:

- All tenants of the buildings on the former WACC property will be permanently relocated. Tenant relocation is not included in this design and is being performed separately by EPA and USACE.
- All the buildings on the former WACC property will be demolished.
- All demolition debris will be transported and disposed of offsite.

1.7 Overall Strategy for Project Delivery

1.7.1 Performance-Based Design Components

According to the scope of work, this RD includes several performance-based design components for which detailed designs will be developed and proposed by the RA Contractor. The Contract Documents (contract specifications and contract drawings) were prepared to provide minimum design requirements for these components. These minimum requirements were developed based on industry standards and technical and present-worth cost considerations that are specific to conditions at the WACC property.

The performance-based design includes the following components.

- Utility disconnection, including disconnection of water, sewer, natural gas, and overhead electric lines
- Structural stabilization of basement walls on Lot 46
- Building demolition, including sequencing and method
- Waste characterization

For these design components, CDM Smith has developed recommendations that are presented in Section 2. However, it is the responsibility of the RA Contractor to design, propose, and implement these components of the remediation.

1.7.2 Procurement Method/Contract Strategy

The Contract Documents will be used by USACE to obtain the services of a Contractor, either through a pre-placed contract mechanism or through the solicitation of proposals.

1.7.3 Implementation Schedule

A representative RA construction schedule illustrating the general time requirements for completion of work is presented in **Figure 1-5**

1.7.4 Review of Project Requirements

CDM Smith has reviewed and incorporated all applicable project requirements into the design. USACE and EPA evaluated conformance with the project requirements during the design kickoff meeting on February 27, 2018. USACE, EPA, and NYSDEC, NYSDOH, New York City Department of Environmental Protection (NYCDEP), NYCDDC, New York City Department of Transportation (NYCDOT), Department of Energy, and ATSDR had independently evaluated conformance with the project requirements as part of the review comments process, which occurred following the 95% design submission. Review comments were resolved and incorporated by CDM Smith into the final (100%) design submittal.

During the RA construction, additional reviews will be required by USACE as part of the construction QA/QC program to verify that the RA Contractor executes this RD in accordance with the design documents.

Section 2

Remedial Design Summary

This section provides a summary of this RD presented in the Contract Documents, including the major design assumptions and rationale that were used to develop the key construction components of the project.

2.1 Overview

The objectives of this RD are to describe and detail the required procedures to enable USACE to procure an RA contractor to implement the selected remedy as specified in the ROD.

The major design components include the following items:

- Furnishing temporary facilities, equipment decontamination area, and site security
- Site preparation, including clearing, removal of any remaining debris after tenant relocation, monitoring well decommissioning, and disconnection of utilities providing services to the buildings to be demolished
- Demolition of all on-site buildings to the top of floor slab except for the two-story building on Lot 46, which will be demolished, leaving only the basement walls and floor
- Waste characterization and off-site transportation and disposal
- Backfilling basement and sumps to ground surface, as needed
- Site restoration, including installation of an exclusion fencing on the WACC property

2.2 Pre-Mobilization Activities

As part of pre-mobilization activities, the RA Contractor will be required to submit the following plans to the Contracting Officer for approval.

- Accident prevention plan (APP), which will include the site safety and health plan, activity hazard analyses, and lead compliance plan as appendices to address all occupational safety and health hazards associated with the remedial action work.
- Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP), which will describe all chemical and radiological parameter measurements for the remedial action with sufficient detail to obtain data to meet the project data quality objectives.
- Community air monitoring plan (CAMP), which will establish the protocols necessary for the anticipation, recognition, evaluation, and control of emissions associated with each task performed depending upon site-specific conditions. The CAMP will include provisions for continuous (24/7) monitoring of the site perimeter during activities that could re-suspend particulate matter into the air.

- Contractor quality control plan, which includes the procedures the RA Contractor will follow to implement the requirements of the contract clause titled “Inspection of Construction.”
- Security plan, which describes the procedures the RA Contractor will follow for site access to be implemented.
- Traffic control plan, which will include the proposed traffic control details for the maintenance of traffic and access around the site.
- Erosion control and stormwater management plan, which will describe the measures the RA Contractor will implement to prevent runoff from the site entering and polluting the storm sewers and downgradient water bodies.
- Environmental protection plan, which will present a comprehensive overview of known or potential environmental issues that the RA Contractor must address during construction.
- Site preparation plan, which will address in detail all the work to be completed as part of site preparation, including construction of temporary facilities and temporary fencing, installation of erosion control and stormwater management, debris removal, monitoring well decommissioning, disconnection of utilities, and clearing.
- Demolition plan, which will include a detailed description of methods and equipment to be used for each operation to be performed as part of demolition and the sequence of operations, providing contingencies for changes that may be required during work based on safety requirements or unexpected conditions encountered.
- Waste management and transportation plan, which will include details on how wastes will be managed, waste minimization methods, handling of demolition debris, approach to recycling, waste characterization methods, proposed landfill and recycling facilities for waste disposal and their information, waste classification and waste volume estimates, letters of commitment from the proposed waste haulers and disposal facilities, methods and equipment to be used to ensure accurate weight measurements of waste material, waste manifesting procedures, information on transfer facilities if proposed to be used, and proposed truck routes.
- Asbestos abatement and disposal plan, which will include specific health and safety procedures to be employed for asbestos work; outline of sequencing of asbestos-related work; procedures to be employed as part of pre-removal, abatement, and post-removal activities; waste storage and disposal; typical work site information; planning air monitoring strategies; methods to control the spread of ACM wastes and airborne fibers; proposed waste handling; and storage materials, equipment, and procedures.
- Lamp and thermostat removal plan, which will include work procedures to be used in the removal, packaging, and storage of mercury-containing lamps and thermostats.

- Lamp and thermostat disposal plan, which will include estimated quantities of wastes to be generated, disposed of, and recycled; disposal facility information; and qualifications of personnel who will perform the work.

2.3 Contractor Mobilization

Access to the WACC property will be coordinated through EPA. The RA Contractor will mobilize all temporary facilities, equipment, and materials to a support zone, as approved by the Contracting Officer. The support zone will house the EPA, USACE, and Contractor's on-site personnel. A security shed will also be located within the support zone.

2.4 Temporary Facilities/Staging Area

The RA Contractor will be responsible for providing temporary safe access and facilities for construction personnel at the site. It is anticipated that three trailers—one for the RA Contractor, one for EPA/USACE, and one for supplies/equipment storage—will be utilized during the remediation. The RA Contractor will provide temporary fencing, as needed, in accordance with New York City Department of Building (NYCDOB) regulations. The RA Contractor is responsible for all utility hook-ups. The utility company contacts, at the time of the design, are listed on Contract Drawing Sheet G-1.

2.5 Site Security

The RA Contractor will be required to secure the WACC property to prevent unauthorized entry during the remedial construction. The WACC property is currently secured with a 6-foot and 8-foot high chain-link fence to prevent public access. Site security will be provided to:

- Deter, restrict, and/or control financial losses to the Government and the RA Contractor. This includes prevention or detection of theft, vandalism, sabotage, and arson.
- Keep unauthorized people from entering the Site, receiving injuries, and removing equipment or hazardous substances.
- Keep unauthorized people from taking action on the Site that might exacerbate the environmental problem or interfere with its remediation.

Site security personnel will be required on-site outside of work hours during weekdays and 24 hours a day during weekends, holidays, and days when no activities are in progress. Security will be established upon the RA Contractor's mobilization to the site. Site security personnel will provide control of all persons, equipment, and vehicles entering and leaving the site. Site security personnel will require all personnel and visitors to sign in and out and will maintain a log of all site access.

2.6 Community Air Monitoring

The RA Contractor will be responsible for providing all equipment, materials, and personnel necessary to monitor and quantify dust and radioactivity levels at the WACC property perimeter fence line during the demolition and transportation and disposal activities. The RA Contractor will prepare a CAMP in accordance with Specification Section 01 35 55, Clean Air Act (40 CFR 50),

and Division of Environmental Remediation (DER) 10 to manage airborne dust and contaminants generated during remedial construction activities. The CAMP will include the application of 10 CFR 61, Appendix E Th-232 limits and 10 CFR 20.1101(d) requirements to maintain public exposures ALARA by limiting air concentrations to $6.2\text{E-}16$ microcuries per cubic centimeter [equivalent to 10 millirem annual effective dose equivalent]. The CAMP will establish, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of emissions associated with each task performed based on site-specific conditions. In addition, fence-line gamma radiation levels will be monitored by limiting the gamma exposure to 5 uR/hr above the initial exposure rate level as described in Specification Section 01 35 29, Table 01 35 29-2.

The remedial construction will be performed in a manner such that ambient air quality objectives at the WACC property perimeter are achieved in accordance with the action levels for respirable dust and alpha radiation presented in Specification Section 01 35 55, Table 01 35 55-1. All air monitoring activities will be conducted continuously (24/7) when site activities have the potential for resuspending particulate matter into the air. In addition to air monitoring, the RA Contractor will be required to furnish and maintain a portable meteorological station for the continuous observation and recording of wind speed, wind direction, ambient air temperature, atmospheric pressure, atmospheric humidity, solar insolation, and atmospheric precipitation.

2.7 Monitoring Well Decommissioning

On-site wells MW-01, MW-02, MW-03, MW-04, and MW-05 will be decommissioned in accordance with NYSDEC CP-43, "Groundwater Monitoring Well Decommissioning Policy," and Contract Documents by a New York state-registered well driller. The driller will grout wells to the top of casing in accordance with Section 2.1 of CP-43, but the upper 5 feet of well casing will be left in-place and removed in the next phase of remediation at the site as part of contaminated soil excavation activities. The RA Contractor will submit the NYSDEC Water Well Abandonment and Decommissioning Report for each well to NYSDEC and provide copies to USACE. Water generated during well decommissioning will be collected, characterized, and disposed of off-site according to its chemical characteristics. Based on data collected during the RI, it is assumed that decontamination water will be disposed of as nonhazardous waste "

2.8 Equipment Decontamination Facilities

The RA Contractor will construct a decontamination pad for decontamination of equipment and vehicles in accordance with the contract specifications. All equipment/vehicles that come in contact with contaminated materials will be decontaminated prior to leaving the WACC property in the Contaminant Reduction Zone. All decontamination water will be collected, characterized and disposed of off-site according to its chemical characteristics. Based on data collected during the RI, it is assumed that decontamination water will be disposed of as nonhazardous waste.

2.9 Stormwater, Soil Erosion, and Sediment Control

The WACC property is approximately 0.75 acre in size, and soil excavation will be limited to disconnection and abandonment of underground utilities during the RA; therefore, meeting the substantive requirements of the General State Pollution Discharge Elimination System permit for construction activities will not be required.

The RA Contractor will develop an erosion control and stormwater management plan, incorporating best management practices. The plan will be submitted to the Contracting Officer prior to the start of construction activities.

Erosion and stormwater control measures will be implemented prior to initiation of the RA. The RA Contractor will be required to maintain temporary erosion and stormwater control features throughout the duration of the RA.

2.10 Utility Disconnection and Abandonment

The RA Contractor will be responsible for utility disconnection before building demolition. Utilities include water, sewer, natural gas, and electric. The approximate locations of subsurface utilities and overhead electrical lines are shown on Contract Drawing Sheet C-2.

All soil excavated during utility disconnection will be backfilled into the excavation. Road cuts will be repaired in accordance with NYCDOT requirements.

Water and Sewer Lines

A New York City (NYC)-licensed master plumber will apply for a permit and disconnect the water and sewer service lines. Per NYC water service disconnection regulations, the water service line connection to the water main must be permanently destroyed. However, to minimize excavation of contaminated soil and removal of lead/steel shielding from sidewalk, the water service line disconnection will be completed at the water main with a concrete plug. Sewer line disconnection will be completed at the curb with a concrete plug. Both water and sewer line disconnection will require excavation below the road/sidewalk. All remnants of the subsurface utility service lines to the buildings will be removed during the next phase of remediation at the site as part of contaminated soil excavation activities.

Two water service lines on Irving Avenue were identified during the RI, one to Lot 44 and the other to Lot 33. The Irving Avenue water main is an 8-inch lined cast iron pipe constructed in 1947. The type of water line connection to the water main is currently unknown. Although not identified during the RI, it is assumed that several water service line connections to Lot 46 and Lot 48 exist from the 48-inch cast iron pipe constructed in 1892 on Cooper Avenue. Based on the age of the existing abandoned buildings, it is assumed that the water main connections may be a lead joint wet connection with a lead pipe service line. All lead removal work will be completed in accordance with the RA Contractor's lead compliance plan.

The RI did not identify which sewer service lines were serving the buildings; however, it is assumed that there are connections to the sewer main to Lots 44 and 42 on Irving Avenue and to Lots 46 and 48 on Cooper Avenue. The RA Contractor will verify sewer service line connection locations.

Natural Gas Lines

The RA Contractor will coordinate disconnection of natural gas lines with the utility company, Con Edison.

Electric Lines

The RA Contractor will coordinate disconnection of electric lines with the utility company, Con Edison. All overhead electric lines connected to the buildings from the main pole will be removed.

Excavated materials or components requiring disposal will be containerized and the containers re-located onto the work site, characterized as specified in Section 2.14, and stored with other containers awaiting transport for disposal and shipped for disposal when shipping manifests have been completed and approved.

2.11 Clearing

The RA Contractor will clear trees between Lots 33 and 42 after demolition of building on Lot 33. Trees will be cut flush to the ground surface. Grubbing of stumps and roots will not be performed. The stumps and roots will be removed during the excavation of contaminated soil, which will occur under a separate RA contract.

Prior to clearing, the RA Contractor will collect two wood core samples from the trunk of a tree at 1 foot above ground as specified in Specification Section 02 40 10 to determine if the trees contain radiological contamination at concentrations that would prevent recycling or disposal as a Subtitle D waste. The wood core samples will be analyzed for Ra-226 and Th-232.

2.12 Asbestos Abatement and Mercury Lamp and Thermostat Removal

A hazardous building materials survey was performed for the property buildings in 2015 to determine presence of ACM, LBP, PCBs, and various mercury-, chlorofluorocarbon-, or tritium-containing materials. At the time of the survey, access to the second floor of the building on Lot 46 was not provided. The report is provided in Appendix B.

The survey found known ACM; assumed ACM (in inaccessible areas that prevented sampling); LBP; and suspected mercury lamps through the building structures. ACM tar was used in the construction of the buildings and found and/or assumed to be in wire insulation and electrical panels, roofing materials, window caulking, and interior construction materials. A summary of the ACM and quantities is presented in Table 2-1.

LBP was found in the buildings on Lot 42, Lot 46, and Lot 48. Light ballasts were labeled as not containing PCBs. Mercury was assumed to be present in all fluorescent light bulbs and wall thermostats throughout, which included fluorescent light bulbs, light ballasts, and wall thermostats. An inventory of items containing mercury is presented in Table 2-2.

Under the Lead Renovation, Repair, and Painting Rule, EPA does not require that contractors performing total demolition of a structure be lead-safe certified by EPA. Additionally, under EPA's Proposed Rule on the Management and Disposal of Lead-Based Paint Debris (EPA 1998), LBP debris does not require toxicity characteristic leaching procedure testing and may be disposed of in a construction and disposal (C&D) landfill. Accordingly, LBP abatement will not be performed prior to demolition. However, LBP was found on recyclable nonporous materials (metal shelves, door cases, steel columns), which cannot be recycled with the LBP. All nonporous material will be abated for LBP at the site prior to recycling.

Lamps and thermostats containing mercury will be removed prior to building demolition in accordance with the RA Contractor's approved lamp and thermostat removal plan and Specification Section 02 84 16. All lamps and thermostats containing mercury will be disposed of offsite at approved landfill.

Asbestos abatement will be performed prior to the initiation of demolition activities in accordance with New York State Rule for Asbestos, Part 56-11.4 and Specification Section 02 82 13. Asbestos abatement is required to be completed before NYCDOB will issue a work permit for demolition. Asbestos abatement will be performed by a New York-licensed asbestos contractor. Air monitoring will be conducted during asbestos abatement. Removal of lamps containing mercury will also be performed prior to initiation of demolition activities. All lamps and thermostats containing mercury will be disposed of off-site at an approved landfill.

2.13 Demolition

The RA Contractor will perform demolition as shown on the Contract Drawings and as described herein. Building demolition will be performed after asbestos abatement and hazardous building material (i.e., lamps and thermostats containing mercury) removal. The RA Contractor will demolish and remove the existing one-story buildings on Lots 33, 42, 44, 46 (Flat Fix), and 48 to the top of building slabs. The two-story building with basement on Lot 46 (deli) will be demolished, leaving only the perimeter basement walls and floor in place. The interior basement wood-framed wall separating the two rooms will be demolished. Bolts secured to concrete slabs or pavement and all metal columns and supports will be cut flush to the slab/pavement surface to leave slabs and pavement intact. Prior to demolition of the two-story building on Lot 46, the RA Contractor will either provide support or backfill the basement to protect the perimeter basement walls from collapsing during demolition.

Building information is provided in Contract Drawing Sheet C-3 and is obtained from a structural inspection performed in February 2017 (Appendix C) with the objective of determining the feasibility of over excavating additional contaminated soil within the building footprint to provide additional shielding. Detailed structural information for the buildings was not obtained during this property visit.

The following is a recommended demolition sequence:

- Demolish the buildings on Lot 33
- Clear trees as discussed in Section 2.11
- Demolish the buildings on Lot 48 and Lot 46
- Demolish the building on Lot 42, Building B, as indicated on the Contract Drawing
- Demolish the remaining buildings

The common wall between Lots 42 and 44, (as part of the original kiln/vat room) known to have radioactivity level greater than 50 pCi/g, will be segregated from other building materials and stored separately for waste characterization and disposal. In addition, nonporous material (e.g.,

structural steel, scrap metal) will be segregated from demolition debris for LBP removal (if necessary), decontamination, alpha/beta radiation scanning, and wipe sampling as described in Section 2.15.3. Nonporous material meeting the alpha/beta release criteria will be sent to an approved recycling facility.

2.14 Waste Characterization, Handling and Off-site Disposal

Waste handling, including classification, segregation, and off-site disposal, is a major component of the site remediation. Based on existing investigation data, demolition debris can be classified as either radioactive waste, nonhazardous solid waste, or recyclable material based on characterization results.

As part of the 95% RD cost estimate (CDM Smith 2018), the two disposal options listed below were evaluated alongside detailed in-situ and ex-situ waste characterization methods that could be used to segregate unimpacted material (non-hazardous waste) from radioactively contaminated material. As part of this evaluation, materials with radioactivity levels below the upper tolerance levels for background in solids developed during the RI (1.2 pCi/g for Th-232 and 0.9 pCi/g for Ra-226) were considered unimpacted material.

- Option 1 – This option considers all building demolition materials, except nonporous salvageable material, to be radioactive waste.
- Option 2 – This option considers all building demolition materials, except nonporous material, to be one of two waste types—nonhazardous or radioactive—based on the waste characterization results and disposal facility acceptance criteria.

The Government evaluated the disposal options as a part of the 95% RD review and selected Option 1 as the preferred waste disposal option. The basis for selecting Option 1 is listed below:

- There was not a significant cost difference between two options.
- Rigorous waste characterization will not be required to segregate non-hazardous material.
- Option 1 has a shorter construction duration.

2.14.1 Demolition Debris to be Disposed of as Radioactive Waste

All demolition debris, excluding nonporous salvageable material, will be disposed of as radioactive waste. Nonporous material will be recycled. Radioactive waste can be disposed of at an NRC-licensed or NRC agreement state-licensed facility, such as EnergySolutions Clive Operations and Waste Control Specialists, LLC, or at a non-NRC-licensed/Subtitle C landfill that accepts radioactive waste such as U.S. Ecology in Grandview, Idaho.

The RA Contractor will identify potential waste disposal and recycling facilities and use the disposal facility's waste acceptance criteria (WAC) to develop characterization protocols meeting the respective WACs. For large container (25 cubic yards or greater) hauling, the average load concentration is not expected to exceed the disposal limits of the radioactive waste disposal facility's WAC.

A waste profile form will be completed, submitted, and approved by the radioactive waste disposal facility prior to any shipment to their facility. U.S. Ecology does not specifically require a waste analysis by an independent laboratory; however, it is recommended that historical data or analysis performed by the RA Contractor be submitted with the waste profile forms. This analysis will apply to all future loads shipped for disposal at the U.S. Ecology facility.

U.S. Ecology will review the waste profile form and perform a MicroShield analysis to determine the likely dose rate associated with the load. U.S. Ecology will utilize that dose rate to determine if each incoming load meets the original accepted profile. Consequently, the RA Contractor will also use that dose rate as a release limit or action level before releasing containers for shipment. The Th-232 and U-238 activity levels will be used to determine the proper United States Department of Transportation (DOT) shipping classification.

Due to the manner in which U.S. Ecology accepts waste loads at the Grandview disposal facility, the RA Contractor would have the alternative of: (1) using the maximum expected concentrations to determine the DOT designation and complete the manifest, labeling, and placarding accordingly, or (2) using an In Situ Object Counting Systems (ISOCS), or equivalent, to determine each load's contents and apply the appropriate DOT designation to each individual load. The first alternative is preferred because it is the less expensive option in terms of labor and materials. If alternative 1 is used, the time needed to perform an ISOCS analysis and subsequent review and approval of the data will be eliminated.

ISOCS for analysis of container contents

At a minimum, ISOCS "shots" of each container will consist of the following:

1. Mounting of a shielded ISOCS on a forklift for movement around the exterior of the container.
1. The ISOCS will be used at a minimum of four locations (with eight recommended) around the container to analyze the container contents. For eight locations analysis, the sides are divided into three segments, and midpoints of each of those segments are analyzed. Additionally, an analysis is made at each end of the container. For four locations analysis, the midpoint of each side and end is analyzed.
2. Analysis will take a minimum of 4 minutes at each location to quantify the radioactivity of the container material.

The RA Contractor's analytical algorithm will consider the density of the load, the air space, thickness and type of container material, and the position of each analyzed location. The ISOCS measurements will provide concentration results for actinium-228 (Ac-228) and Ra-226. Because it is assumed that Ac-228 is in proximate equilibrium with its respective decay chain parent (Th-232), the activity of Ac-228 is assigned to Th-232.

QA (confirmation) samples will be collected from approximately 20% of the loads to be shipped and analyzed by an independent laboratory to confirm the ISOCS analysis methodology or as required by the disposal facility. Those samples will be collected via methods described in American Society for Testing and Materials (ASTM) D6044, Standard Guide for Representative

Sampling for Management of Waste and Contaminated Media, and in accordance with the RA Contractor's approved UFP-QAPP.

During clearing activities, characterization samples will be collected of the vegetation to determine levels of radioactivity. Those samples will determine if vegetation will be disposed of as radioactive waste or recycled. CDM Smith assumes that the material will be sent off-site for recycling.

CDM Smith estimates that 976 tons of radioactive building materials will require disposal and 437 tons of nonporous material (i.e., structural steel, scrap metal, and glass,) could be recycled at an approved recycling facility. A calculation of the estimated quantities of demolition debris is presented in Appendix D. Table 2-3 presents the different waste types to be generated from the RA activities.

2.14.2 Recycling

It is expected that nonporous material (i.e., structural steel, scrap metal, and glass) will be recycled. LBP abatement will be performed on nonporous materials containing LBP to recycle the materials. If radioactive contamination is present on nonporous materials, the contamination would mostly likely only be surficial. In those cases, the RA Contractor would use the provisions in NUREG 1575, the Multi-Agency Radiation Survey and Assessment of Materials and Equipment manual (MARSAME) to develop a Waste Management and Transportation Plan to allow for clearance of the material for recycling. The plan will likely involve the following process:

1. Scan of the material.
2. If the scan does not show elevated surface activity, wipes of the surface will be taken at the frequency specified in the RA Contractor's Waste Management and Transportation Plan. It is expected that a minimum of 10% of the surface will be wiped.
3. If the scan shows elevated activities, a wipe will be collected at those locations to determine if the contamination is removable and the level of that removable contamination.
4. If the contamination is removable, the material will be decontaminated.
 - a. Following decontamination, another scan will be performed, and a wipe will be collected to verify decontamination.
5. If the contamination is not removable, the nonporous material will be disposed of as radioactive waste.

2.14.3 Transportation

The RA Contractor is expected to meet all DOT requirements, including those within Title 49, Subtitle B, Chapter I, Subchapter A. No waste will be transported off the site until review and determination has been made as to its acceptability for disposal at the chosen waste disposal facility and its DOT shipping classification status.

All trucks leaving the site will be surveyed and inspected prior to release from the site. At a minimum, the inspection must meet the criteria specified on DD Form 626, Motor Vehicle

Inspection (Transporting Hazardous Materials), or contractor equivalent. If the shipment is designated as low specific activity (LSA-I) based on the characterization data, placards will need to be affixed to the front, back, and sides of the container. If the material is exempt, the placards are not required.

Surveys will consist of the following:

- Wipe tests of the exterior of the container in accordance with DOT standards: The wipes are 300 cm² (rather than the traditional 100 cm² wipes used in radiological-licensed operations). The wipe results are compared to the allowable limits in 49 CFR 173.443. The limits are effectively 240 dpm/100 cm² removable alpha and 2,400 dpm/100 cm² removable beta.
- External radiation surveys of the truck and container using a Ludlum 19 μ R meter or meter with equivalent range: The surveys will be completed at distance of 1 foot from the truck and container surface. Normally, the survey results would be compared with the limits in 49 CFR 173.441, but in this case, the exposure rate of concern would be that developed by U.S. Ecology for their waste acceptance profile of the WACC material. It is likely this exposure rate value will be between 100 and 200 μ R/h and approximately one order of magnitude less than the radioactive hazardous material designation limits identified in 49 CFR 173.441.

The shipping manifest will be reviewed to ensure the entries meet the shipping paper requirements of 49 CFR 173 and match the radionuclide values assigned to the container's load. A copy of the final truck/container survey will accompany the shipping papers.

In several cases, the container load may have radionuclide concentrations less than the 49 CFR 173 radioactive hazardous material designation limits and as such are exempt from inspection, survey, and hazardous material shipping papers. A bill of lading will still be required, and the information on that lading will be approximate to that of a shipping paper, except the hazardous material designations will not be listed.

2.15 Traffic Control and Haul Routes

Because the work will be performed adjacent to a street and sidewalk, the RA Contractor will provide control and protection of traffic in accordance with the New York City Traffic Rules and Regulations. Traffic control to be implemented includes the use of barriers, signals, signs, flag people, or other devices, equipment, or personnel at the entrance and exit of the WACC property.

All material will be hauled off-site for disposal. The RA Contractor will use the NYC Truck Route Network (NYCDOT Traffic Rules, Title 34, Chapter 4 Rules of the City of New York), which includes designated roadways to be used for local and through truck traffic. Cooper Avenue/Cooper Street located adjacent to the west side of the WACC property is a designated local truck route. This route leads to Atlantic Avenue, which is a designated through-truck route. The operator of the truck is restricted to drive only on Atlantic Avenue until reaching the Brooklyn-Queens Expressway or the Van Wyck Expressway and exiting Brooklyn (Kings County). The truck operator can only drive on a non-designated street for the purpose of arriving at the WACC property (i.e., driving on Irving Avenue or Moffat Street).

2.16 Backfilling

WACC property areas below grade, including the basement at Lot 46 and the sump in Lot 33, will be backfilled to the surrounding grade elevation to prevent open pools of water forming in these two areas and to remove the hazard of an open hole. Backfill will also be placed to prevent erosion and runoff of soil and exposure to the contaminated soil in between the concrete slabs on Lot 33 and Lot 42 and areas of exposed soil in the former rail spur area. Backfill material will be crushed stone less than 2 inches in size.

Crushed stone and sand brought to the site will be free of frozen material, rubbish, or other unsuitable materials. Crushed stone and sand will be tested to ensure it is free from chemical contamination as defined in DER-10, Residential Soil Cleanup Objectives, and radiological contamination as defined in Specification Section 01 35 45. Approximately 591 cubic yards of crushed stone will be required to backfill basement, sump, and other open or disturbed areas (Appendix E). Based on the approximate crushed stone volume, it is anticipated that one sample will be collected and sent to an off-site laboratory for analysis. No backfill will be brought to the site without written approval from the Contracting Officer.

Before backfilling the basement, geotextile will be placed on the floor and walls of the basement of Lot 46 to separate the contaminated floor/wall from clean crushed stone, which is to be used as a backfill for the next phase of remediation at the site. Compacted crushed stone will be mounded to provide positive surface drainage. Geotextile material will be placed over the crushed stone and a 4-inch layer of sand placed on the geotextile to prevent damage to the geomembrane. Geomembrane will be placed over the sand layer on the mounded stone and covered with a minimum of 4 inches of sand to protect the top of the geomembrane. The geomembrane will be secured at the edges of the backfill area to prevent the geomembrane from being moved by the wind. A 3-inch layer of crushed stone will then be placed over the sand layer.

The geotextile material will generally meet the requirements for a nonwoven monofilament geotextile with a high permeability to allow drainage through the geotextile and basement floor. The geomembrane material will generally meet the requirements for an impermeable high-density polyethylene membrane.

2.17 Site Restoration

The RA Contractor will perform final site restoration as shown on Contract Drawing Sheet C-4. Site restoration will include the following activities:

- Installation of an exclusion fence around the perimeter of the WACC property
- Filling the basement on Lot 46 (including the sump hole) and the sump hole in Lot 33 with crushed stone as discussed in Section 2.17
- Repairing the concrete sidewalk where concrete steps and the cellar door entrance for the Lot 46 building were located
- Filling any holes in the concrete slabs and asphalt pavement remaining on the property with crushed stone

- Placing and grading crushed stone over any areas of exposed soil that may have been displaced due to equipment traffic during remedial construction activities
- Paving roadways along Irving and Cooper Avenues, as necessary, that may have been damaged due to heavy equipment movement or during utility disconnection

The exclusion fence will meet the requirements of the NYCDOB construction code for fencing and will consist of an 8-foot-tall chain link fence. The fence will utilize the two existing gates. Warning signs will be posted on the fence.

Concrete sidewalk repair will meet NYCDOT requirements and consist of 4-inch-thick concrete sidewalk with a 6-inch compacted aggregate base.

2.18 Green Remediation

Green remediation is the practice of considering all environmental effects of the implementation of a remedy and incorporating options to maximize the net environmental benefit of cleanup actions. EPA strives for cleanup programs that:

- Use natural resources and energy efficiently
- Reduce negative impacts on the environment
- Minimize or eliminate pollution at its source
- Reduce waste and reuse materials to the maximum extent possible

The RA Contractor will be required to incorporate green remediation practices into the remedial design and construction whenever feasible in accordance with the EPA Region 2 “Clean & Green” Policy, issued on March 17, 2009 and its update issued on March 11, 2010. Green remediation strategies will be implemented to reduce direct and indirect greenhouse gas and other emissions, increase energy efficiency, conserve and efficiently manage resources and materials, reduce waste, and increase reuse of materials.

CDM Smith performed a preliminary evaluation of green remediation practices applicable to this work assignment. Applicable green practices that will be required to be implemented by the RA Contractor during construction activities are included in Specification Section 01 81 30 and described below. The RA Contractor will be required to supply documentation and records supporting the green remediation practices implemented (i.e., disposal certificates, utility receipts) in accordance with the RD specifications.

2.18.1 Incorporation of Clean Diesel Fuel and Technology

The majority of fuel that will be used during construction activities is associated with heavy construction equipment that will be used for demolition, loading, and backfill work. The RA Contractor and subcontractors will be required to certify that only ultra-low sulfur diesel is used on the project, which will improve the quality of the vehicle exhaust. In addition, vehicle idling will not be allowed for longer than 5 minutes.

2.18.2 Material Reuse, Reduction, and Recycling

Material reuse, reduction, and recycling minimizes impacts on natural resources and reduces the production of waste. Waste reduction minimizes environmental impacts by limiting the amount of land required for waste disposal and minimizing consumption of fossil fuels and generation of air emissions associated with transport of the waste. Material reuse, reduction, and recycling practices at the site will include the items detailed below.

- Demolished nonporous building materials (e.g., steel, scrap metal, lead pipe) will be decontaminated and recycled at an approved recycling facility.
- One hundred percent of the copy papers, file folders, and paper office supplies will be required to come from recycled sources. Required recovered materials content will be as recommended by EPA's Comprehensive Procurement Guidelines.

2.18.3 Sustainable Practices

Sustainable site practices minimize degradation of ecosystems and promote good stormwater management. The sustainable practices listed below are associated with the site activities.

- All construction activities will be performed on a previously developed site. No destruction of habitat will be required to complete the remedial construction activities.
- No new impervious material will be generated as part of site activities, which can contribute to localized flooding.
- Soil erosion and sediment control measures will be implemented for the duration of site construction. Silt fences will be installed along WACC property boundaries to reduce the amount of sediment leaving the property, which could adversely impact the storm sewers and downgradient water bodies.
- Dust control will be implemented during demolition activities to prevent adverse impacts to air quality.

2.19 Demobilization

After final inspection is completed, the RA Contractor will initiate demobilization activities. This will include, but is not limited to, removal of all trailers, equipment, materials, and personal protective equipment (PPE).

2.20 Cost Estimate

The 95% and revised 95% design cost estimates were submitted on June 27 and August 8, 2018, respectively for review by USACE-Kansas City District. The Final Construction Cost Estimate will be submitted under a separate cover to USACE-Kansas City District. The construction cost estimate will be prepared using Micro-Computer Aided Cost Estimating System, Second Generation (MII), Version 4.4. The submittal will include associated backup detailing the cost assumptions used for the cost estimate.

Section 3

Construction Quality Assurance/Quality Control

This section describes the procedures that will be implemented to provide QA/QC during site preparation, demolition, waste characterization, transportation and disposal, and site restoration. The intent of the construction QA/QC is to ensure that all work is completed in accordance with the requirements in the Contract Documents (drawings and specifications) prepared during the RD. Information has been included herein to summarize the various QA/QC measures contained in the contract specifications and to identify the manner in which these QA/QC measures will be implemented and monitored during the course of construction.

3.1 Construction QA/QC Organization

It is the responsibility of all involved parties to ensure that quality is maintained throughout the construction duration. USACE will have the overall responsibility for construction QA/QC. The RA Contractor will be responsible for implementing QC procedures in accordance with the QA program. The RA Contractor also will be required to submit a detailed contractor quality control plan.

The USACE Contracting Officer will be responsible for the following activities:

- Conduct progress meetings on a periodic basis during remediation to address the status of project construction, schedule changes, test results, observations and findings, issues of noncompliance, change orders, and upcoming activities. The frequency of these meetings depends on the environmental significance of site activities and the level of oversight required.
- Monitor the construction QA program to ensure that appropriate technical review is completed by qualified representatives.
- Maintain continuous communication with the EPA Remedial Project Manager.

Responsibilities of the Contracting Officer's QA/QC representative are outlined below:

- Review all design documentation, including the design drawings and specifications, shop drawings, plans, and other submittals from the RA Contractor.
- Review (as required) modifications to the design drawings and specifications as they occur during construction.
- Provide assistance in determining whether the construction has been completed in general conformance with the drawings and specifications.
- Maintain contact with the remedial construction and operations contractor, herein referred to as the "RA Contractor," regarding conformance with the QA/QC requirements.

- Provide assistance to the Contracting Officer's resident engineering representative in the review and interpretation of field and laboratory testing results.
- Review all field and laboratory QA/QC testing and inspection results for conformance with the specifications and RD report. Provide an interpretation of data to determine areas that are in conformance and those that are in nonconformance with these documents. Determine areas that require reworking and/or repair.
- Perform periodic site visits to review construction progress and QA/QC procedures.
- Ensure that the Contracting Officer's resident engineering representative is notified of any noted deficiencies in QC testing results or procedures.
- Coordinate with the RA Contractor and all lower-tier subcontractors to ensure compliance with the QA/QC requirements.
- Maintain a continuous record of any changes or modifications to the design drawings and specifications.

USACE will provide resident engineering and field inspection representatives who have knowledge of and experience with the construction activities on-site. The inspection representatives will assist the resident engineering representative with the responsibilities outlined below.

- Record any on-site activities that could result in noncompliance with the design documents and report these activities to the Contracting Officer's QA/QC representative.
- Document field and laboratory testing as required by the specifications.
- Observe construction materials delivered to the site, such as backfill and geotextile, to determine general conformance with material specifications.
- Observe and record procedures used for site preparation, demolition, waste characterization, transportation and disposal, and site restoration, and record any deficiencies in these activities.
- Prepare daily construction logs and a daily quality control report.
- Serve as the daily contact person and maintain routine contact with the Contracting Officer and the RA Contractor regarding conformance with QC measures.

The RA Contractor will identify a Contractor Quality Control (CQC) Manager who will be responsible for overall management of CQC and have the authority to act in CQC matters for all features of work. The CQC Manager will have the roles outlined below.

- Maintain an on-site supervisory presence during construction, with no duties other than QC.
- Maintain a continuous line of communication with the Contracting Officer's QA/QC representative to identify and discuss field issues as they arise.

- Use the USACE-furnished quality control system software to record, maintain, and submit information throughout the contract period.
- Provide technical submittals to confirm that the contract specifications are being met.
- Ensure that the QA/QC requirements of the specifications (e.g., testing, inspection) are being met.
- Identify potential design/construction issues as early as possible to avoid impact to the project performance and/or construction schedule.

3.2 Construction QA/QC Activities

The Contract Documents play an important role in the implementation and monitoring of QA/QC activities. The contents of these documents establish the QA/QC elements of activities occurring before, during, and after the construction. Specific to QA/QC, the specifications may, depending on the given component of construction, specify any or all the following items.

- Performance standards or operating conditions to assist the RA Contractor in the selection and purchase of equipment
- Required construction materials
- Applicable codes, standards, and specifications to govern material and workmanship quality
- Information to be submitted for technical review
- Coordination of work activities for all elements of construction
- Manufacturer or field testing requirements
- Performance guarantees
- Workmanship/equipment warranties

The specifications provide the framework for QA/QC measures by identifying the appropriate equipment and materials to be utilized, indicating acceptable construction practices, requiring on-site and off-site testing, and specifying performance and workmanship warranties. To gauge compliance with the requirements of the Contract Documents, three phases of control (preparatory, initial, and follow-up) are performed for each definable feature of work, and QA/QC activities, such as review of technical submittals and material/equipment testing and inspection, are performed. These activities are further discussed below.

3.2.1 Review of Technical Submittals

For certain elements of construction, the specifications require the RA Contractor to prepare technical documents and submit this information to the Contracting Officer for review. The objective of these requirements is to monitor the RA Contractor's understanding of the design and prevent any misinterpretation of the specifications that may otherwise impact the design

objectives or construction schedule. The submittal of technical documents encompasses many elements of construction activity. Required submittals may include planning documents, product specifications, certifications, and test results.

The technical submittal review process is an essential activity for monitoring QA/QC before construction begins. The submittal of technical documents signifies that all quantities, dimensions, field construction criteria, materials, model numbers, and other pertinent information have been determined and verified by the RA Contractor. It also ensures that the RA Contractor incorporates the specifications and the design drawings into the construction activities.

The Contracting Officer's resident engineering representative will review the technical documents to determine general compliance with the design drawings and specifications. Submitted data are reviewed and assigned a rating as outlined below.

- "A – Approved as submitted" if no objections are observed or comments made.
- "B – Approved, except as noted. Resubmission not required" if minor objections, comments, or additions are made but resubmittal is not considered necessary.
- "C – Approved, except as noted. Resubmission required" if the objections, comments or additions are extensive. The RA Contractor would be required to resubmit the items after correction.
- "D – Will be returned by separate correspondence."
- "E – Disapproved (see attached)" if the submittal under consideration is not acceptable or when the data submitted are not sufficiently complete to establish compliance with the design drawings and specifications.
- "F – Receipt Acknowledged" all submittal listed "For Information Only" will require this code.
- "FX – Receipt Acknowledged, does not comply as noted with contract requirements;" all submittals listed "For Information Only" requiring re-submittal will require this code.

3.2.2 Field Inspection and Testing of Materials, Equipment, and Installation

In addition to the technical data required by the RA Contractor prior to construction activities, several requirements exist in the contract specifications for specific testing and inspection of equipment and materials. This testing and/or inspection will be required on-site once the component or material has been installed or placed. Testing of select material and equipment provides additional assurance that the component has been properly manufactured, installed, and/or coordinated with other components of construction. Documentation of testing/inspection required by the contract specifications includes, but is not limited to, the following items.

- Inspection of material upon delivery and prior to installation
- Sieve, chemical, and radiological analysis of imported materials
- Calibration of field testing instrumentation

- Inspection of site works, including fencing, soil erosion and sediment controls, basement walls support, backfill, and final site restoration

Testing and inspection requirements in the contract specifications are discussed further in the following sections. The completion inspections below will be conducted at two stages during remedial action. The first set of completion inspections will be conducted after all pre-demolition site construction work is complete, including construction of erosion and stormwater controls and temporary fencing and facilities. The second set of inspections will be conducted after the site restoration activities are completed and prior to demobilization.

3.2.2.1 Pre-Final Inspection

The pre-final inspection will be performed by EPA, USACE, and the RA Contractor. This inspection will be performed over the course of a 1-day period and will include a visual inspection of the work completed at the site to demonstrate that the project has met design criteria detailed in the contract specifications.

For this inspection, a list of incomplete work items (“Pre-Final Punch List”) will be developed by the Contracting Officer and submitted to the RA Contractor. The RA Contractor is responsible for making all repairs, replacements, and/or adjustments to meet the required performance criteria. Any major incomplete work items identified by the Contracting Officer will be addressed immediately. If necessary, follow-up inspections will be performed to verify completion of major work items.

3.2.2.2 Final Inspection

The final inspection will be conducted the EPA, USACE, and the RA Contractor after all punch list items identified during the pre-final inspection have been addressed. The inspection will include a visual inspection of all work. Any incomplete work items identified by the Contracting Officer will be corrected by the RA Contractor immediately.

This page intentionally left blank.

Section 4

Regulations, Standards, and Construction Codes

All RD and RA activities will comply with all federal, state, and local government regulations. The following regulatory requirements will be taken into consideration during the design and remediation activities of the project.

4.1 General Regulations

General regulations to be taken into consideration include:

- Comprehensive Environmental Response, Compensation, and Liability Act
- OSHA
- Clean Water Act
- Clean Air Act
- National Environmental Policy Act
- RCRA

4.2 Health and Safety

Health and safety requirements to be taken into consideration include:

American Conference of Governmental Industrial Hygienists

- Threshold limit values for Chemical Substances and Physical Agents and Biological Exposure Indices

American National Standards Institute (ANSI) and American Society of Safety Engineers (ASSE)

- ANSI/ASSE A10.6 Safety and Health Program Requirements for Demolition Operations
- ANSI Z41.1 Men's Safety Toe Footwear
- ANSI Z87.1 Practice for Occupational and Educational Eye and Face Protection
- ANSI Z88.2 Standard Practice for Respiratory Protection
- ANSI Z89.1 Safety Requirements for Industrial Head Protection
- ANSI Z358.1 Emergency Eyewash and Shower Equipment
- ANSI Z590.3 Prevention through Design

OSHA

- 29 CFR 1904 Recording and Reporting Occupational Injuries and Illnesses
- 29 CFR 1910 Occupational Safety and Health Standards (General Industry)
 - Section 38 – Employee Emergency Plans and Fire Prevention Plans
 - Section 95 – Noise
 - Section 120 – Hazardous Waste Operations and Emergency Response
 - Section 132 – General Requirements
 - Section 133 – Eye and Face Protection
 - Section 134 – Respiratory Protection
 - Section 135 – Head Protection
 - Section 136 – Foot Protection
 - Section 137 – Electrical Protective Equipment
 - Section 146 – Permit Required Confined Spaces
 - Section 147 – The Control of Hazardous Energy
 - Section 1000 – Air Contaminants
 - Section 1096 – Ionizing Radiation
 - Subpart I – Personal Protection Equipment
- 29 CFR 1926 Safety and Health Regulation for Construction (Construction Industry)
 - Section 21 – Safety Training and Education
 - Section 59 – Hazard Communication
 - Section 65 – Hazardous Waste Operations and Emergency Response
 - Section 602 – Material Handling Equipment
 - Subpart P – Excavation
 - Subpart F – Fire Protection and Prevention
 - Subpart E – Personal Protective and Life Saving Equipment
- 49 CFR 171 General Information, Regulations, and Definitions

- 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
- 49 CFR 173 Shippers – General Requirements for Shipments and Packagings

EPA

- Safety and Health Requirements Manual
- National Ambient Air Quality Standards
- Ambient Monitoring Guidelines for Prevention of Significant Deterioration

National Institute for Occupational Safety and Health (NIOSH)

- Publication No. 85-115 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
- Publication No. 2001-145 NIOSH Pocket Guide to Chemical Hazards
- Manual of Analytical Methods

USACE

- Engineering Manual (EM) 385-1-1, Safety and Health Requirements Manual
- EM 385-1-80, Radiation Protection Manual
- Engineering Regulation (ER) 385-1-80, Ionizing Radiation Protection
- ER 385-1-92, Safety and Occupational Health Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) Activities
- EM 1110-35-1, Management Guidelines for Working with Radioactive and Mixed Waste

New York City Administrative Code (NYCAC)

- 24 NYCAC 1 Air Pollution Control

New York Codes, Rules, and Regulations (NYCRR)

- 12 NYCRR 38 New York State Department of Labor Ionizing Radiation Protection
- 10 NYCRR 16 New York State Department of Health Ionizing Radiation
- 10 NYCRR 73 New York State Department of Health regulations for the training of workers in the asbestos abatement industry and regulations concerning asbestos safety training providers

York City Building Code

- Chapter 33 Safeguards during Construction or Demolition

Others

- Federal Acquisition Regulations (FAR) Accident Prevention FAR Clause 52.236.13
- Other state and local regulations pertaining to health and safety

4.3 Chemical/Radiological Quality Management Plan

USACE

- EM-200-1-6, Chemical Quality Assurance for HTRW projects
- ER 1110-1-263, Engineering and Design – Chemical and Radiological Data Quality Management for Hazardous, Toxic, Radioactive Waste Remedial Activities

U.S. Department of Defense (DOD)

- DOD Quality Systems Manual for Environmental Laboratories

EPA

- EPA SW-846 Test Methods for Evaluating Solid Waste: Physical/Chemical Method (Update IV)
- EPA 505-B-04-900A Intergovernmental Data Quality Task Force, Uniform Federal Policy for Quality Assurance Project Plans Part 1 for Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs
- EPA 505-B-04-900B Intergovernmental Data Quality Task Force, Uniform Federal Policy for Quality Assurance Project Plans Part 2B for Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities
- EPA 505-B-04-900C Intergovernmental Data Quality Task Force, Uniform Federal Policy for Quality Assurance Project Plans Part 2A for Workbook for UFP for QAPP
- EPA 402-B-04-100A, Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual

CFR

- 40 CFR 261 Identification and Listing of Hazardous Waste

4.4 Demolition/Backfill

OSHA

- OSHA 2207, Subpart T, Subsection 1926.850, Construction Industry, Construction Standards, U.S. Department of Labor

- OSHA 2207, Subpart P, Subsection 1926.650 through 1926.652, Construction Industry, Construction Standards, U.S. Department of Labor

NYCAC

- 24 NYCAC 2 Noise Control

NYSDEC

- DER-10 Technical Guidance for Site Investigation and Remediation

NYCRR

- 10 NYCRR 375 Environmental Remediation Programs
- 12 NYCRR 56 New York State Department of Labor regulations relating to the hazards to public safety and health during the removal, encapsulation, enclosure, repair, or the disturbance of friable and non-friable asbestos, or any handling of asbestos material that may result in the release of asbestos fiber
- NYCRR Title X, Part 67-2 New York State regulations for environmental assessment and abatement of lead

NYCDEP

- 15 Rules of the City of New York (RCNY) 1 Asbestos Control Program: Asbestos Rules and Regulations

New York City Housing Preservation and Development

- Local Law 1 of 2004 Childhood Lead Poisoning Prevention Act

CFR

- 40 CFR 261 Identification and Listing of Hazardous Waste
- 40 CFR 763 Regulations related to the National Emission Standards for Asbestos

Other

- Noise Pollution Code, EPA Ordinance 89-38

4.5 Transportation and Disposal

CFR

- 40 CFR 262 Regulations for Hazardous Waste Generators
- 40 CFR 263 Regulations for Hazardous Waste Transporters
- 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials

Communications, Emergency Response Information, and Training Requirements

- 49 CFR 173 Shippers – General Requirements for Shipments and Packaging
- 49 CFR 302 Designation, Reportable Quantities, and Notification

NYCRR

- 6 NYCRR Part 360 Solid Waste Management Facilities General Requirements
- 6 NYCRR Part 364 Waste Transporter Permits regulations including waste transportation, transport permits, and asbestos transportation tracking

4.6 Construction Codes, Standards and Regulations

4.6.1 General Construction

- ASTM. Applicable ASTM standards will be referred to in the project's civil/structural specifications.
- NYCDOB Building Code
- NYCDOT Department of Transportation
- NYCDOT Standard Highway Specifications

Section 5

Required Permits and Approvals

The permit equivalencies and approvals identified as being required for remedial activities at the WACC property are summarized below. Permit equivalents will be filed with the City of New York. Electrical and gas service disconnection is noted in Section 2 of this document.

5.1 Introduction

The following permit equivalencies and approvals have been identified as being required for this phase of the RA work at the WACC property. A brief description of each permit equivalency or approval is provided below. Table 5-1 provides a list of agencies, the required permit equivalencies/approvals, and websites for application forms, requirements and guidance documents. Appendix F provides the permit applications.

5.2 New York City Department of Transportation

5.2.1 Occupation of Sidewalks and Roads

Permits for work in sidewalks and to access utilities in public streets as well as staging, storing equipment, or placing a fence on sidewalks/roadways/right of ways require a permit. Application for permits under NYCDOT authority can be applied for online. Insurance requirements are noted on the website (<http://www.nycstreets.net/public/signin/index>). Work zone traffic protection plans would be provided in support of the application material submitted. Permits are issued for 90-day duration and must be renewed for the duration of the work.

5.3 New York City Department of Buildings

Application submitted to the NYCDOB may include any or all the following application forms:

- PW1: Plan/Work Application
- PW1B: Schedule B Plumbing, Sprinkler, Standpipe
- PW2: Work Permit Application
- PW3: Cost Affidavit
- PW4: Application for Certification of Compliance Equipment
- TR1: Technical Report Statement of Responsibility
- B Form 2A: Application for Inspection Prior to Demolition
- BEST Appointment Request Form
- DS1: Demolition Submittal Certification Form

- **PW7: Certification of Occupancy/Letter of Completion Folder Review Request**

NYCDOB application forms are electronically filed using eFiling or DOB NOW: Build. Both filing sites are located on the NYCDOB home page. Users must register to access this feature. Instructions are provided on the NYCDOB website. Insurance requirements apply to the RA Contractor who is granted the work, demolition, or plumbing permit.

Supporting plans must meet NYCDOB requirements for size, border, and content. The use of an expeditor may prove useful for obtaining approval in a timely manner.

5.4 New York City Department of Environmental Protection

5.4.1 Water and Sewer Line Disconnection

The required forms must be completed by a NYC licensed plumber. The NYCDOT permit (Section 5.2) to allow for work to be done on the sidewalk and within the roadway must be approved prior to the issuance of the disconnection permits as the sidewalk and street must be opened to disconnect the service lines.

5.4.2 Asbestos Abatement

As the asbestos investigation conducted for the buildings to be demolished estimated more than 10 square feet or 25 linear feet of ACM will be disturbed by the building demolition activities, the work is considered an 'Asbestos Project,' requiring access to the Asbestos Reporting and Tracking System (ARTS) and completing Form ACP7. All asbestos activity permits are filed online through the ARTS eFile system (<https://a826-web01.nyc.gov/acpefile/Login.aspx?ReturnUrl=%2facpefile%2fACP7Home.aspx>). Pre-abatement investigation is required to be completed by an NYCDEP-certified inspector. Certification by NYCDEP-Bureau of Environmental Control (BEC) of completion of abatement work is required prior to NYCDOB issuance of a work permit. A variance may be applied for using ACP9. The abatement work is to be completed prior to the demolition or other work within a structure. A variance to this requirement may be applied for online using ARTS at the same time ACP7 is submitted. A meeting to review the variance request is held at NYCDEP's office in Long Island City. The need for the development of a work place safety plan may be required by NYCDEP-BEC as a condition of an asbestos work permit.

Section 6

Health and Safety Program

6.1 Site Description and Contamination Characterization

A site description, including location, approximate size, past uses, and summary of contamination characterization data are included in Section 1.

6.2 Hazard Assessment and Risk Analysis

CDM Smith employed a systematic method to assess hazards, risks, and mitigating controls applicable to this RD, as well as potential HTRW cleanup activities. There are several chemical and physical hazards that are associated with the remedial activities to be performed at the WACC property. To ensure that these hazards are adequately evaluated, the RA Contractor will be required to develop an APP, which will include a site safety and health plan (SSHP). The APP will be submitted to USACE for approval prior to the beginning of the field activities. The APP/SSHP will be developed and implemented by the RA Contractor's Safety and Health Manager (SHM) in accordance with EM 385-1-1, ER 385-1-92, and all relevant OSHA requirements, as indicated in Specification Section 01 35 29. The APP and SSHP should not repeat language or requirements. The document must be usable in the field so should be as concise as possible and repeated language and requirements lead to confusion and a document too large to be usable.

Potential exposures to workers involved with the remedial activities can be summarized as follows:

- Direct contact with contaminated soil, groundwater, and biological agents
- Direct exposure to gamma emissions from building and soil radiological contaminants
- Inhalation of radioactive particulates or thoron/radon and their respective decay progeny
- Inhalation or ingestion of metal, asbestos, and organic particulates
- Construction safety issues such as fall protection; slips, trips and falls; equipment; machinery; heat and cold stress; and hearing protection

In addition to describing how exposure levels will be maintained below the maximum permissible concentrations (as prescribed by OSHA), the APP/SSHP will also address the health and safety hazards associated with each site task and operation to be performed during the RA. The following are anticipated tasks/operations:

- Mobilization
- Site preparation (temporary fencing, well decommissioning, construction of staging area,)
- Disconnection and abandonment of underground utilities

- Excavation support system of deli basement walls, if necessary
- Lamps and thermostats removal
- Asbestos abatement
- Building demolition and segregation
- Tree clearing
- Off-site transportation and disposal of demolition debris
- Backfilling of areas below ground surface
- Site restoration
- Decontamination of tools and equipment
- Demobilization

6.3 Staff Organization, Qualifications, and Responsibilities

The plans and specifications will require that a SHM, meeting the qualification and experience requirements detailed in Specification Section 01 35 29, develop, implement, and oversee the RA Contractor's H&S program and the APP/SSHP. The SHM will be required to sign and date the APP/SSHP. An experienced Site Safety and Health Officer will be required to implement and enforce the H&S program and the APP/SSHP elements during the remedial activities. At least two people certified in First Aid/cardiopulmonary resuscitation will be on-site during RA activities. A certified occupational physician will be required to be available for monitoring medical surveillance protocols and review of all examination/test results. The occupational physician performing the exam will be informed of the types of contaminants and their respective levels for the site work.

6.4 Training

All personnel performing on-site work activities will be required to complete the applicable training in compliance with 29 CFR 1910, 29 CFR 1926, 29 CFR 1910.1200 (Hazard Communication), 49 CFR Subpart H, and EM 385-1-1. At a minimum, the following will be required training for all general site workers:

- Forty hours of HTRW health and safety training off-site.
- Eight hours of refresher training annually.
- Three days of actual field experience under the direct supervision of a trained, experienced supervisor.
- Eight hours supervisor's course for all on-site supervisors covering at least the following topics:

- The employer's H&S program
- PPE program
- Spill containment program
- Health hazard monitoring techniques
- Site-specific training covering all elements in the APP/SSHP, including radiation safety training, will be provided to workers before on-site work begins. Site-specific training will be updated as site circumstances warrant.

Individuals involved with shipping hazardous materials and/or hazardous waste will be required to have received the appropriate DOT training as specified in 49 CFR subpart H.

Individuals involved in asbestos abatement will be required to have received the appropriate training and be licensed as specified in 15 RCNY 1. Individuals involved in lead abatement will be required to have received the appropriate training and be licensed as specified in Local Law 1 of 2004.

6.5 Personal Protective Equipment

The RA Contractor will be required to submit a written PPE program in accordance with the requirements of EM 385-1-1, Section 5. The program will provide a detailed description of the minimum PPE required, including the specific materials of construction for each site-specific task/operation based on the hazard/risk analysis performed. Levels of protection will be relevant to site-specific conditions, including potential heat stress and associated PPE safety hazards. The program will also describe the procedures to determine its effectiveness and procedures for on-site fit-testing of respirators and proper cleaning, maintenance, inspection, and storage of all PPE. The RA Contractor will be required to identify the levels of protection required for each site activity in the APP/SSHP. The RA Contractor will perform continuous air monitoring during the demolition and loading of all contaminated materials. The RA Contractor will be required to detail actions necessary for increasing and decreasing levels of protection in the APP/SSHP. It is anticipated that all field activities where contaminants will be disturbed and come into contact with parts of the body other than hands and feet, will be performed in Modified Level D PPE.

6.6 Medical Surveillance

All on-site personnel will be required to participate in a medical surveillance program overseen by a licensed physician certified in occupational medicine. The medical surveillance program will comply with OSHA standards 29 CFR 1910.120 (f) and 29 CFR 1926.65 (f) and the requirements contained in ER 385-1-92. The occupational physician performing the exam will be informed of the types of contaminants and their respective levels for the site work. The RA Contractor will be required to maintain a medical opinion written by the attending physician describing the fitness of individuals to perform site activities. Certification of personnel participation in the medical surveillance program will be included in the APP/SSHP. All personnel medical records will be maintained in accordance with 29 CFR 1910.1020.

6.7 Exposure Monitoring/Air Sampling Program

The RA Contractor will be required to detail the specifics of the program designed to quantify airborne dust, gamma exposure, airborne radioactivity, radioactive particulates, and noise. This program will rely on both direct instrument reading air monitoring and air sampling. The program will be able to assess potential employee exposure in active work areas. The program will describe action levels and include corrective actions. Requirements for evaluation, recordkeeping, and reporting will be consistent with those outlined in ER 385-1-92, Section 9 and EM 385-1-1, Section 6. The exposure monitoring and air sampling program is detailed in Specification Section 01 35 29.

The RA Contractor will also be responsible for monitoring airborne dust and contaminants generated by site activities at the WACC property perimeter fence line as discussed in Section 2.6. The RA Contractor will prepare a CAMP in accordance with Specification Section 01 35 55, Clean Air Act (40 CFR 50), National Emissions Standards for Hazardous Air Pollutants (40 CFR 61), and DER-10 prior to the onset of remedial construction activities. Air concentrations of radionuclides will be continuously monitored at the site perimeter in accordance with the approved CAMP.

6.8 Heat/Cold Stress Monitoring

Details of the heat and cold stress monitoring program will be described in the RA Contractor's APP/SSHP. Monitoring will be based on ambient temperatures, humidity, wind speed, solar radiation, duration and intensity of work, and PPE ensembles. The RA Contractor will be required to comply with the protocols, schedules, and requirements of EM 385-1-1, Section 06.J.

6.9 Standard Operating Procedures, Engineering Controls, and Work Practices

Standard operating procedures, such as site rules/prohibitions, work permit requirements, material handling procedures, drum/container handling procedures, demolition safety, guarding of machinery and equipment, electrical protection, lockout/tagout, fall protection, hazard communication, illumination, sanitation, engineering controls, signs and labels, and contaminated or hazardous material handling and storage, where applicable, will be detailed in the APP/SSHP.

For utility excavation and disconnection, barriers will be established around the excavation area to prevent non-worker entry. A security presence or non-permanent fencing will be established if the excavation must remain open after normal work hours. Excavated materials will be staged within the barricaded/secured area.

Standard trench safety controls required by OSHA will be applied for any excavation work with depths greater than 4 feet. Monitoring of airborne and direct gamma levels during the excavation process will be performed to ensure potential radiological doses for both workers and members of the public remain below design objectives. Dust suppression controls to limit airborne exposure during excavation will be implemented. Personnel and equipment surveys will be conducted to ensure personnel and equipment are free of contamination prior to exiting excavation control area.

6.10 Site Control Measures

Site control measures, such as details regarding work zone delineation, communications, site security, and general site access, will be included in the APP/SSHP. Site delineation and designation will be based on the contamination characterization data and the hazard/risk analysis performed in accordance with ER 385-1-92.

6.11 Personal Hygiene and Decontamination

The specifications detail the necessary facilities and procedures for personal hygiene and decontamination of site personnel. The APP/SSHP will address methods for waste minimization and decontamination of site personnel.

6.12 Equipment Decontamination

The RA Contractor will be required to detail facilities and procedures with respect to decontamination in accordance with EM 385-1-1 and Specification Section 01 35 29.

6.13 Emergency Equipment and First Aid Requirements

At a minimum, occupational physician-approved first aid equipment and supplies, including emergency eyewash and showers, emergency-use respirators, spill control materials and equipment, and fire extinguishers, will be included with the APP/SSHP consistent with the requirements of EM 385-1-1, Section 3. Emergency equipment required to be on-site will have the capacity to respond to project-specific emergencies.

6.14 Emergency Response and Contingency Procedures

The RA Contractor will be required to develop and implement an emergency response plan that complies with the requirements of Specification Section 01 35 29, 29 CFR 1910.120, 29 CFR 1926.65, and EM 385-1-1.

6.15 Accident Prevention

The APP/SSHP will also provide an activity hazard analysis for each project activity. This analysis will explain the hazards associated with each activity and what will be done to mitigate any accident potential. The RA Contractor will be required to conduct daily safety and health inspections to ensure the effectiveness of the APP/SSHP and determine if operations are being conducted in accordance with the APP/SSHP, USACE and OSHA regulations, and contract requirements.

In the event of an accident/incident, the RA Contractor will be required to report to the appropriate authority in accordance with EM 385-1-1. This requirement is included in Specification Section 01 35 29. Within 5 working days of any reportable accident, the RA Contractor will complete and submit the required accident reports.

6.16 Logs, Reports, and Recordkeeping

Details of training records maintenance, daily safety inspection logs, equipment maintenance logs, employee/visitor register, medical opinions, and exposure monitoring logs will be included in the APP/SSHPP and will comply with the requirements of ER 385-1-92, Section 9, and EM 385-1-1, Section 33.

Section 7

List of Technical Specifications

Section No.	Title
-------------	-------

DIVISION 01 – GENERAL REQUIREMENTS

01 11 00	Summary of Work
01 12 00	Pre-Construction and Pre-Work Conferences
01 20 00	Measurement and Payment
01 30 10	Administration Requirements
01 31 19	Project Progress Meetings
01 32 01	Project Schedule
01 32 33	Project Photographs
01 32 34	Videotaping
01 33 00	Submittal Procedures
01 35 29	Health, Safety, and Emergency Response Procedures
01 35 45	Chemical/Radiological Data Quality Control
01 35 55	Community Air Monitoring
01 45 00	Resident Management System Contractor Mode (RMS CM)
01 45 16	Contractor Quality Control
01 50 00	Temporary Construction Facilities and Controls
01 50 10	Security
01 55 26	Traffic Control
01 57 13	Erosion Control and Stormwater Management
01 57 19	Environmental Protection
01 58 13	Signs/Temporary Project Signage
01 78 39	Project Record Documents
01 78 00	Project Closeout
01 81 30	Green Remediation Requirements

DIVISION 02 – EXISTING CONDITIONS

02 40 10	Site Preparation
02 41 00	Demolition
02 81 00	Transportation and Disposal of Materials
02 82 13	Asbestos Abatement
02 84 16	Handling of Lamps and Thermostats Containing Mercury

DIVISION 31 – EARTHWORK

31 00 00	Site Restoration
----------	------------------

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 31 13	Fencing
----------	---------

This page intentionally left blank.

Section 8

List of Design Drawings

Sheet No.	Title
-----------	-------

General

G-1	General Notes, Drawing Index, Legend and Symbols
-----	--

Civil

C-1	Site Plan
C-2	Site Preparation Plan
C-3	Building Demolition Plan
C-4	Site Restoration
CD-1	Civil Details I

This page intentionally left blank

Section 9

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2014. *Health Consultation*. Former Wolff-Alport Chemical Corporation Site. 1125-1139 Irving Avenue, Queens, New York. January 23.

ATSDR. 2012. *Health Consultation*. Former Wolff-Alport Chemical Corporation Site. 1125-1139 Irving Avenue, Queens, New York. February 29.

CDM Smith. 2017a. *Final Remedial Investigation Report*. Wolff-Alport Chemical Company Superfund Site. Remedial Investigation/Feasibility Study. Ridgewood, Queens, New York. July 3.

CDM Smith. 2017b. *Final Feasibility Study Report*. Wolff-Alport Chemical Company Superfund Site. Remedial Investigation/Feasibility Study. Ridgewood, Queens, New York. July 20.

CDM Smith. 2018. Draft Final Design (95%) Cost Estimate. Wolff-Alport Chemical Company Superfund Site. Remedial Investigation/Feasibility Study. Ridgewood, Queens, New York. June 27.

Department of Defense, Department of Energy, U.S. Environmental Protection Agency (EPA), and Nuclear Regulatory Commission. 2009. *Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)*. NUREG-1575, Supp. 1. EPA 402-R-09-001. DOE/HS-0004. January.

Louis Berger and Associates. 2010. *Radiological Scoping Survey for Wolff-Alport Chemical Corporation Site*, 1125-1139 Irving Avenue, Queens, New York 11385. August 23.

New York State Department of Health, New York City Department of Health and Mental Hygiene, and EPA. 2014. *Multi-Agency Former Wolff Alport Chemical Company Neighborhood Radiological Assessment*, July 29-August 5, 2013. March 12.

Nuclear Regulatory Committee. 1974. *Regulatory Guide 1.86*. Termination of Operating Licenses for Nuclear Reactors. June.

Richard Grubb and Associates. 2018. Phase IA Literature Search and Archaeological Sensitivity Assessment, Wolff-Alport Chemical Company Superfund Site Remediation, 1125-1139 Irving Avenue, Ridgewood, Borough of Queens, Queens County, New York. May 2018.

Soren, J. 1978. *Subsurface geology and paleogeography of Queens County, Long Island, NY*: US Geological Survey Water Resources Investigations Open File Report 77-34, 17 p.

United States Environmental Protection Agency (EPA). 2017. *Record of Decision: Wolff-Alport Chemical Company Superfund Site*, Ridgewood, Queens County, New York. September.

EPA. 2013. *Results of measurements associated with the search for radon/thoron potential gas entry points performed in TerraNova company, Primo company buildings located at 1127-1133*

Irving Avenue, Public School 384 located at 272 Moffat Street and in building located at 1125 Irving Avenue in Queens and Brooklyn, NY. August 1.

EPA. 1998. Proposed Rule on the Management and Disposal of Lead-Based Paint Debris. 40 CFR Part 745. December 18.

Weston Solutions Inc. 2016. *Radiation Assessment and Action Report*, Former Wolff-Alport Chemical Company Site, Ridgewood, Queens County, New York. January.

Weston Solutions Inc. 2013. Draft Inter-Agency Radiological Perimeter Survey: U.S> Environmental Protection Agency, Region II, New York State Department of Health, and New York City Department of Health and Mental Hygiene – Wolff Alport Site, Revision 1.

A decorative design featuring a vertical blue line on the left and a horizontal blue line intersecting it. The intersection point is in the lower-left quadrant. There are blue gradient shadows in the top-right and bottom-left corners.

Tables

Table 1-1
Building Materials Radiological Gamma Spectroscopy Results
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

Location	Sample ID	Sample Date	Parent Sample*	Potassium-40				Radium-226				Thorium-232			
				Result	CSU (+/-2 s)	MDA	Q	Result	CSU (+/-2 s)	MDA	Q	Result	CSU (+/-2 s)	MDA	Q
Solids Screening Criteria								0.919				1.220			
Building Materials															
LOT33	BRICK-02-LOT33	12/17/2015		23.743	3.068	0.976		3.86	1.593	1.67	J	1.754	0.384	0.183	
LOT33	BRICK-902-LOT33	12/17/2015	BRICK-02-LOT33	22.182	3.137	0.874		3.85	2.149	2.46	J	1.76	0.35	0.352	
LOT33	CIND-01-LOT33	12/17/2015		2.18	1.14	1.79	J	2.726	1.59	1.86	J	0.579	0.215	0.372	J
LOT42	BRICK-09-LOT42	12/18/2015		33.469	6.481	4.41	J	21.09	10.986	13.5	J	152.66	9.698	1.6	
LOT42	CONC-07-LOT42	12/17/2015		12.978	2.782	2.18	J	8.217	6.701	8.15	J	57.643	4.018	0.758	
LOT42	CONC-08-LOT42	12/18/2015		3.917	0.608	0.191		0.349	0.602	0.705	UJ	0.45	0.115	0.077	
LOT44	BRICK-06-LOT44	12/17/2015		32.95	6.769	9.2	J	44.219	16.906	21.1	J	415.17	25.721	2.73	
LOT46	BRICK-03-LOT46	12/17/2015		9.781	1.986	1.93	J	6.619	2.855	3.73	J	7.784	0.813	0.332	J
LOT46	IBEAM-05-LOT46	12/17/2015		0.479	0.302	0.469		0.413	0.498	0.723	UJ	0.099	0.075	0.125	U
LOT46	WOOD-04-LOT46	12/17/2015		2.85	0.975	0.613	R	0.147	0.987	1.15	R	0.505	0.178	0.216	R

Notes:

All units in picoCurie per gram (pCi/g).

CSU (+/- s) = combined standard uncertainty (2 sigma)

MDA - minimum detectable activity

Q - qualifier

U - not detected

J - estimated value

R - rejected

* Parent sample ID listed for duplicate samples.

Highlighted cell and bold format indicates that concentration exceeded screening criteria.

Table 1-2
Remediation Goals
Wolff-Alport Chemical Company Superfund Site
Ridgewood, Queens, New York

Contaminants of Concern	Remediation Goal	Specifically Applied Principles
<i>Solids</i>		
PCBs	1 mg/kg	
Benzo(a)pyrene	1 mg/kg	
Ra-226 ¹	1 pCi/g ²	ALARA
Th-232	4 pCi/g ²	ALARA
<i>Indoor Air</i>		
Combined Radon-222 and Radon-220 measured indoors	4 pCi/g ²	ALARA
Combined decay products of Radon-222 and Radon-220 measured indoors	0.02 working level _{2,3}	ALARA

Notes:

1. Ra-226 is used to indicate U-238 levels.
2. Including natural background.
3. Some devices measure radiation from radon decay products, rather than radiation coming directly from radon. Measurements from these devices are often expressed as "Working Level."

Table 2-1
Asbestos-Containing Materials and Quantities
Wolff-Alport Chemical Company Superfund Site
Ridgewood, Queens, New York

Lot Number	Asbestos-Containing Material	Quantity
33	Tar on cinderblock wall	4,000 SF
	Abandoned panel board backing paper	12 SF
	Tar on front edge trim below roof	100 SF
	Assumed ACM electrical panels	26 SF
	Assumed ACM electrical wire insulation	1,500 SF
	Roof membrane/flashing/pitch pocket tar/drain flashing	13,400 SF
	Flashing on roof fans/gooseneck flashing	40 SF
42	Roof membrane	7,800 SF
	Roof flashing/parapet wall tar/flashing	1,720 SF
	Coping stone tar	150 SF
	Vent stack tar/flashing	40 SF
44	Roof membrane	2,500 SF
	Roof flashing/parapet wall tar/flashing	500 SF
	Vent stack tar/flashing	10 SF
	Tar on beams	20 SF
46	Tar/Paint on gate	30 SF
	Roof membrane	1,000 SF
	Roof flashing/parapet wall tar/flashing	520 SF
	Tar on beams	40 SF
	Assumed asbestos-containing roofing materials	1,500 SF
	Assumed asbestos-containing window caulking materials	12 LF
	Assumed asbestos-containing surfacing materials throughout interior	3,000 SF
	Assumed asbestos-containing thermal insulation materials throughout interior	120 LF
	Assumed asbestos-containing miscellaneous materials throughout interior	2,000 SF
48	Roof membrane	90 SF
	Roof flashing	40 SF
	Tar on walls	10 SF
	Tar/Purple paint on wall	320 SF
	Roof membrane	1,000 SF
	Parapet wall tar/roof flashing	520 SF
	Coping stone tar	10 SF
	Vent stack tar/flashing	10 SF

Notes:

SF - square feet

LF - linear foot

ACM was assumed to be present in areas unable to be sampled.

Table 2-2
Inventory List of Materials Containing Mercury
Wolff-Alport Chemical Company Superfund Site
Ridgewood, Queens, New York

Lot Number	Hazardous Material¹	Quantity (Each)
33	Suspect mercury-containing fluorescent light bulbs - 4 feet	68
	Electric wall thermostats - 6 inches	4
42	Suspect mercury-containing fluorescent light bulbs - 4 feet	80
	Fluorescent light ballasts ²	40
44	Suspect mercury-containing fluorescent light bulbs - 2 feet	6
	Suspect mercury-containing fluorescent light bulbs - 4 feet	10
46	Suspect mercury-containing fluorescent light bulbs - 2 feet	36
	Suspect mercury-containing fluorescent light bulbs - 4 feet	10
48	Suspect mercury-containing fluorescent light bulbs - 4 feet	24

Notes:

¹ Each fluorescent light bulb and thermostat presumed to contain mercury.

² Two ballasts were presumed to be associated with each fluorescent light fixture.

Table 2-3
Waste Disposal Categories
Wolff-Alport Chemical Company Superfund Site
Ridgewood, Queens, New York

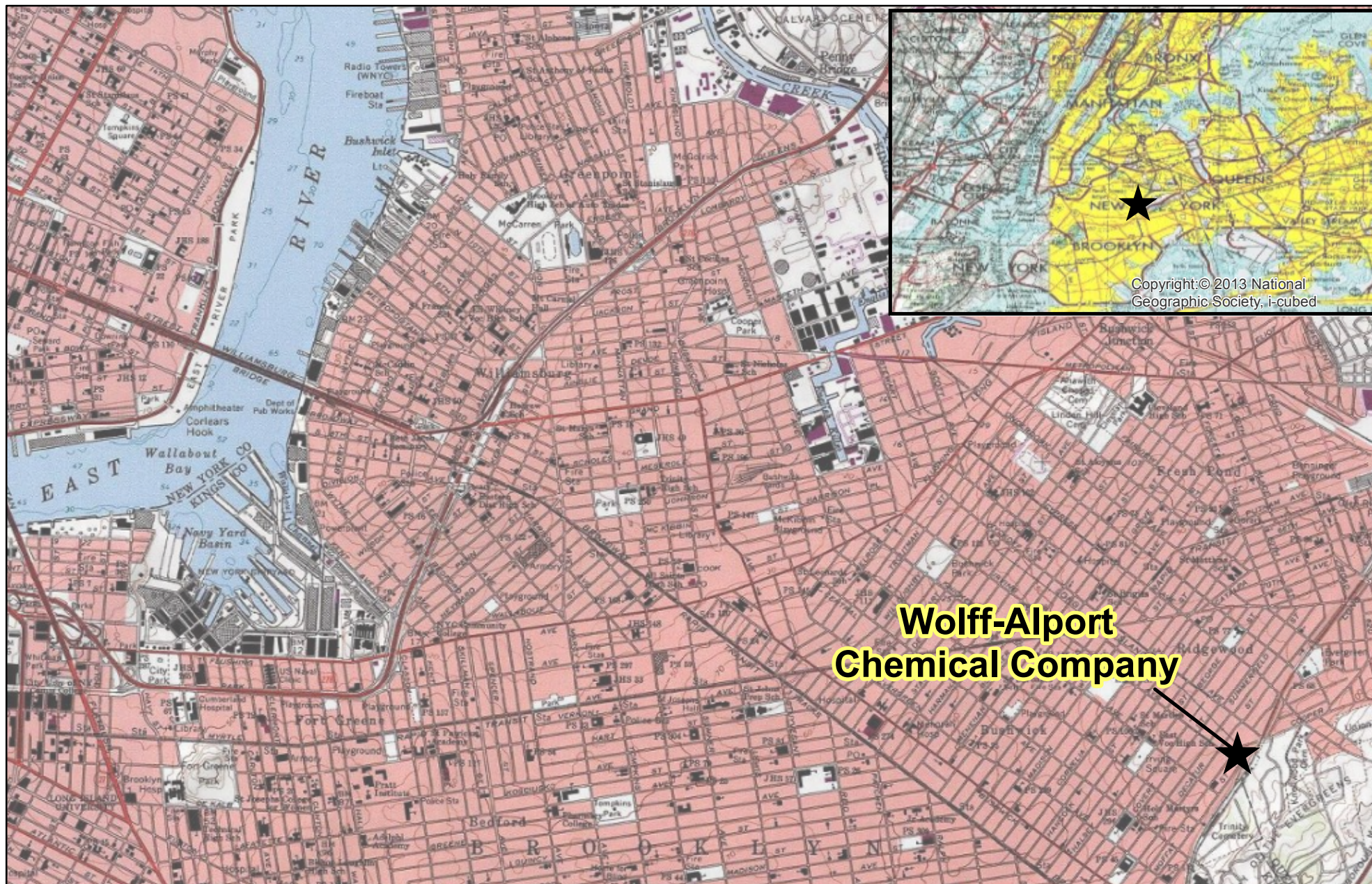
Activity	Waste Description	Disposal
Site preparation	Cleared vegetation	Recycling facility
	Miscellaneous debris - nonporous	Recycling facility
	Miscellaneous debris - porous	C&D facility
Asbestos Abatement and Mercury-Containing Materials Removal	Asbestos	Approved asbestos/Subtitle D landfill
	Mercury-containing materials	Recycling facility
Water	Decontamination water	Nonhazardous - treatment facility
	Well decommissioning water	
Demolition	Nonporous materials not meeting the alpha/beta release criteria and porous demolition debris	Radioactive waste facility
	Nonporous material meeting the alpha/beta release criteria	Recycling facility

Table 5-1
Summary of Permits and Approvals
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

Permit/Approval	Authority	Contact Name/Number
Street or Sidewalk Construction Permit	New York City Department of Transportation	Director of Project Managers, OCMC-Streets - Duane Barra (212) 839-9630 Director of Project Managers, OCMC-Streets - Gary Smalls (212) 839-9583 Director of Construction Coordination, OCMC-Streets - Vacant (212) 839-7129
Work Permit	New York City Department of Buildings	Queens Borough Office Borough Commissioner: (718) 286-7670 Borough Director: (718) 286-7630 Customer Service: (718) 286-7620
Asbestos Activity Forms	New York City Department of Environmental Protection	artsfeedback@dep.nyc.gov https://a826-web01.nyc.gov/acpefile/Login.aspx?ReturnUrl=%2facpefile%2fACP7Home.aspx
Permit for Tap, Plug, Wet Connection, Repair/Relay of Water Service line	New York City Department of Environmental Protection	WSPS Support at 718-595-3088 or wsps@dep.nyc.gov https://a826-amr.nyc.gov/mydepaccount/
Plug Single/Multiple Premise(s) Sewer House Connection(s)		

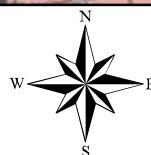


Figures



Copyright © 2013 National Geographic Society, i-cubed

**Wolff-Alport
Chemical Company**

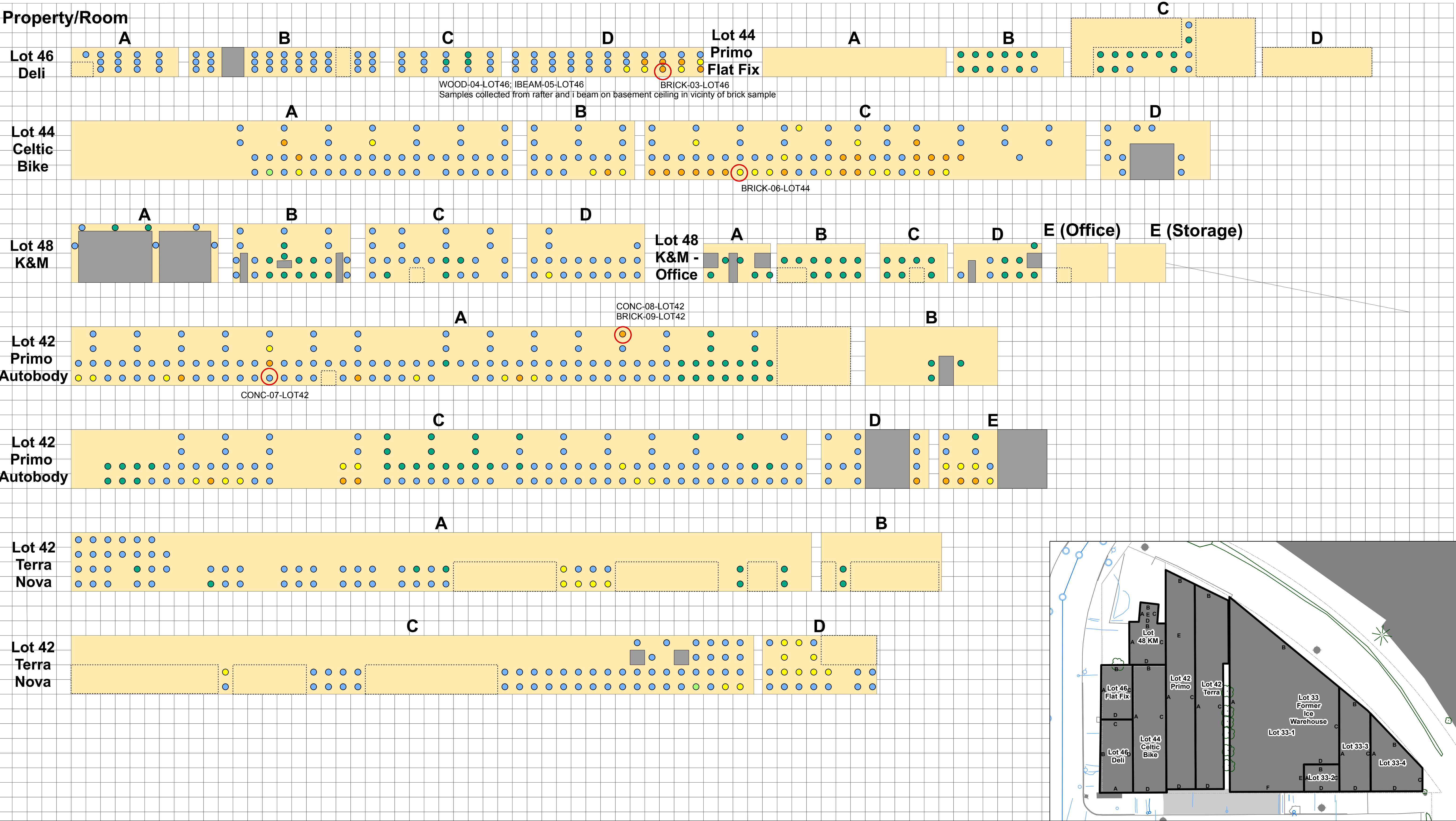


0 0.25 0.5 1 Miles

**Figure 1-1
Site Location Map
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York**

**CDM
Smith**





Wall Gamma Survey (CPM)

- <2,500 (background)
- 2,500-5,000 (<2x background)
- 5,000-12,500 (2-5x background)
- 12,500-25,000 (5-10x background)
- >25,000 (>10x background)

- Interior Walls
- 1 Meter Wall Grid
- Door
- Obstruction
- Sample Location

Notes:
Scale - 1 meter = 1 grid unit
All data in counts per minute (CPM)
Material sampling locations designated on map.

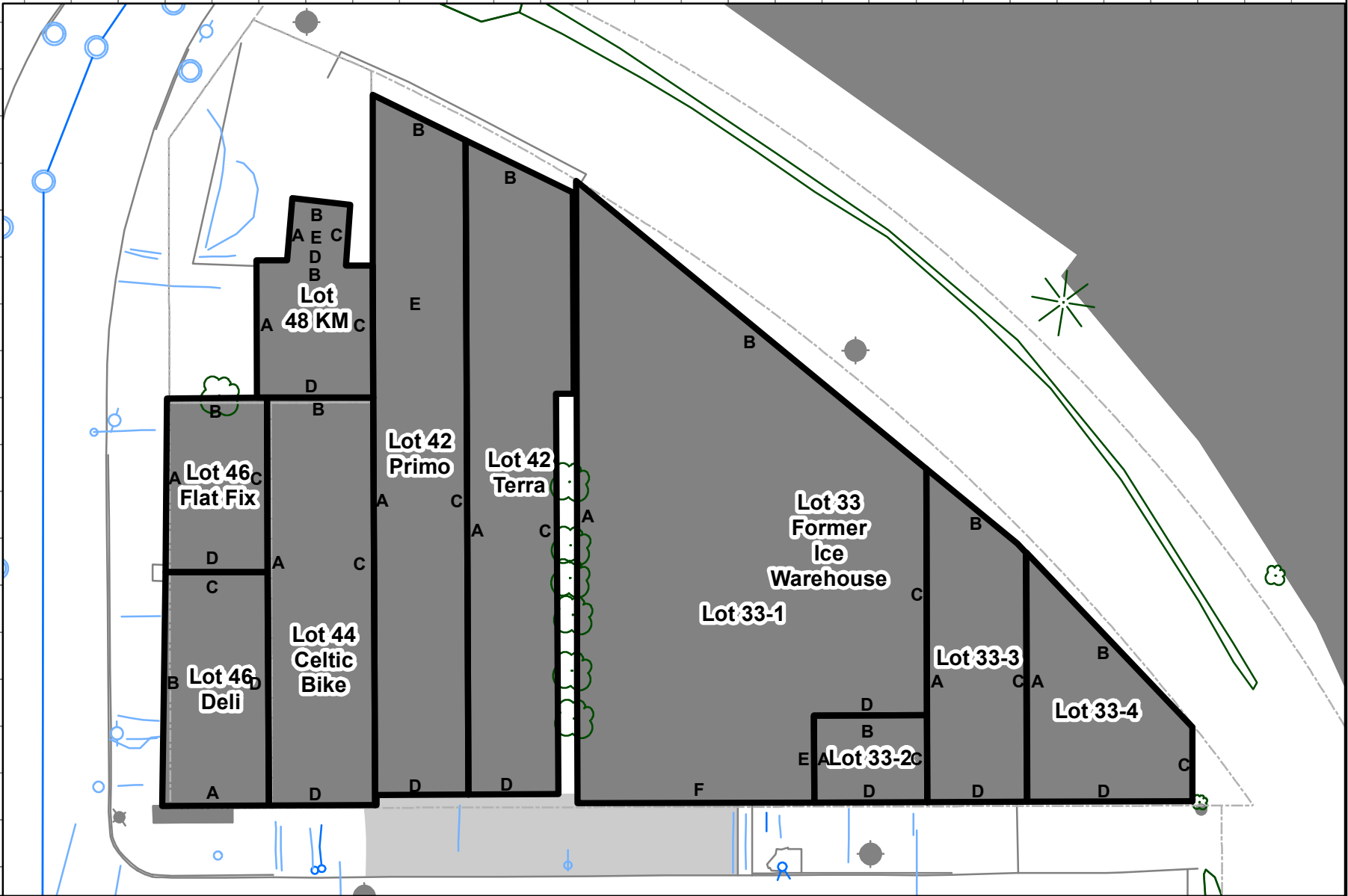
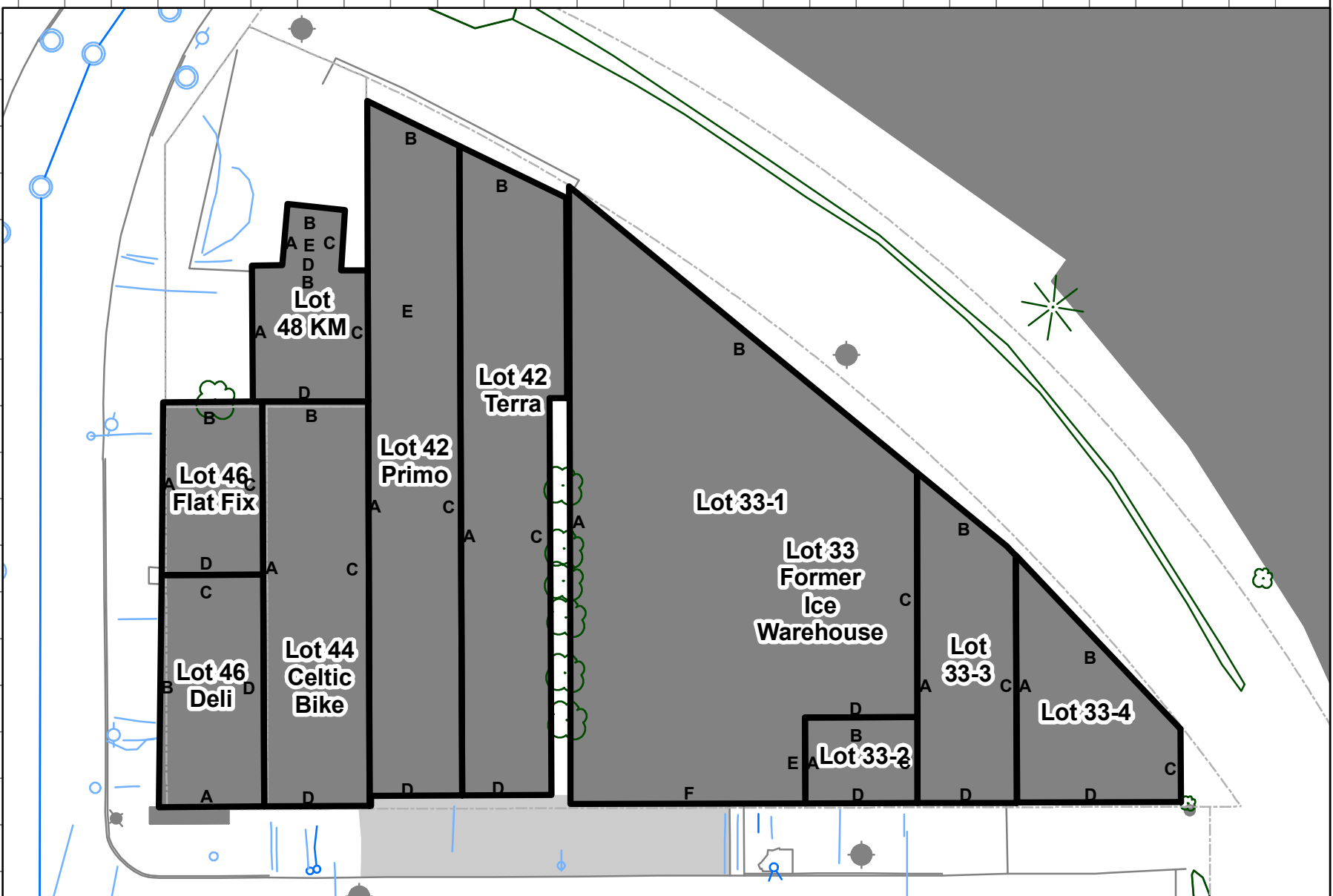
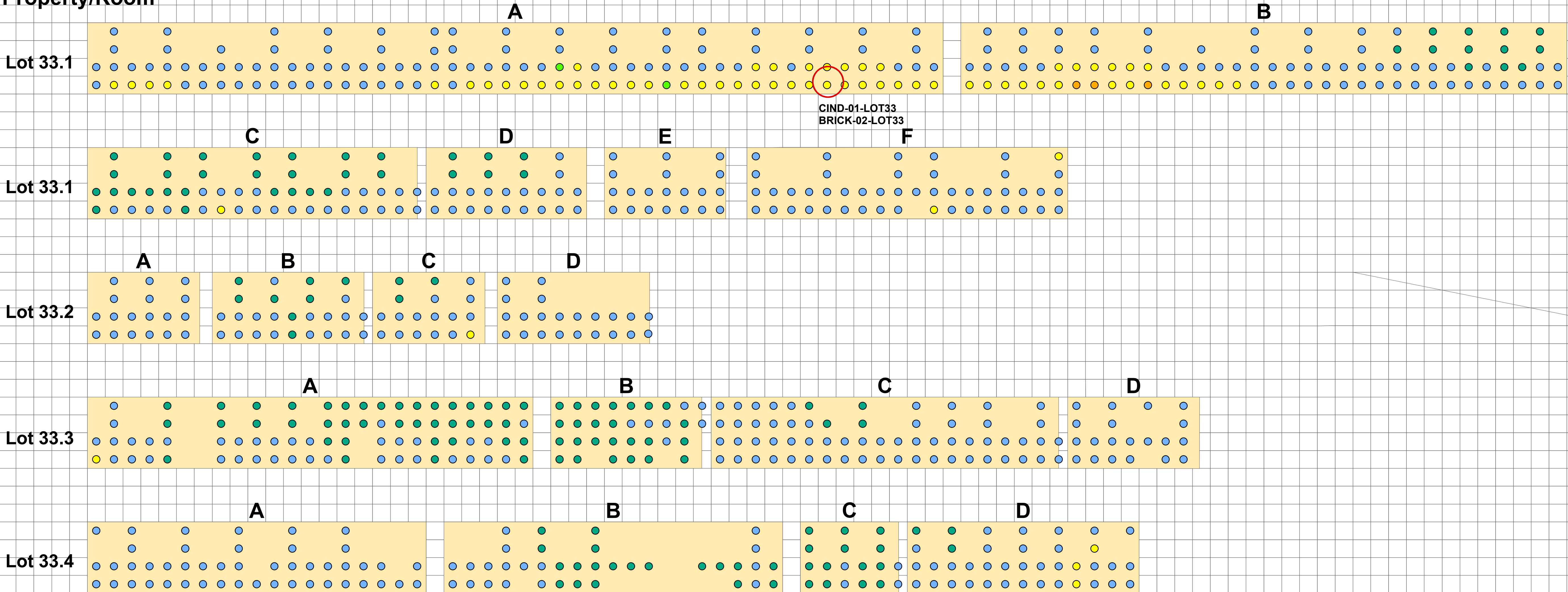


Figure 1-3a
Page 1 of 2
Building Gamma Survey - Interior Wall
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York
CDM Smith

Property/Room



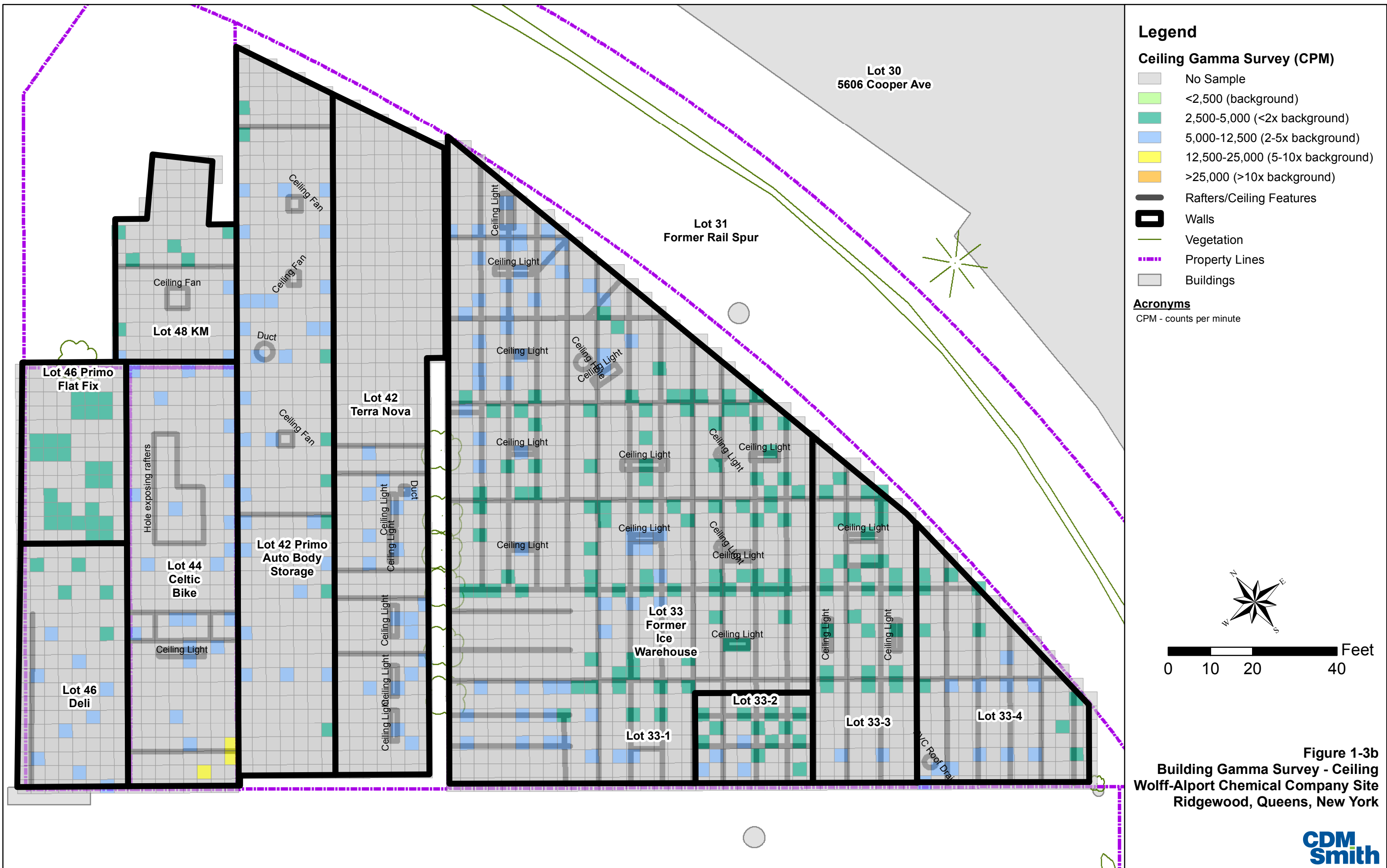
Wall Gamma Survey (CPM)

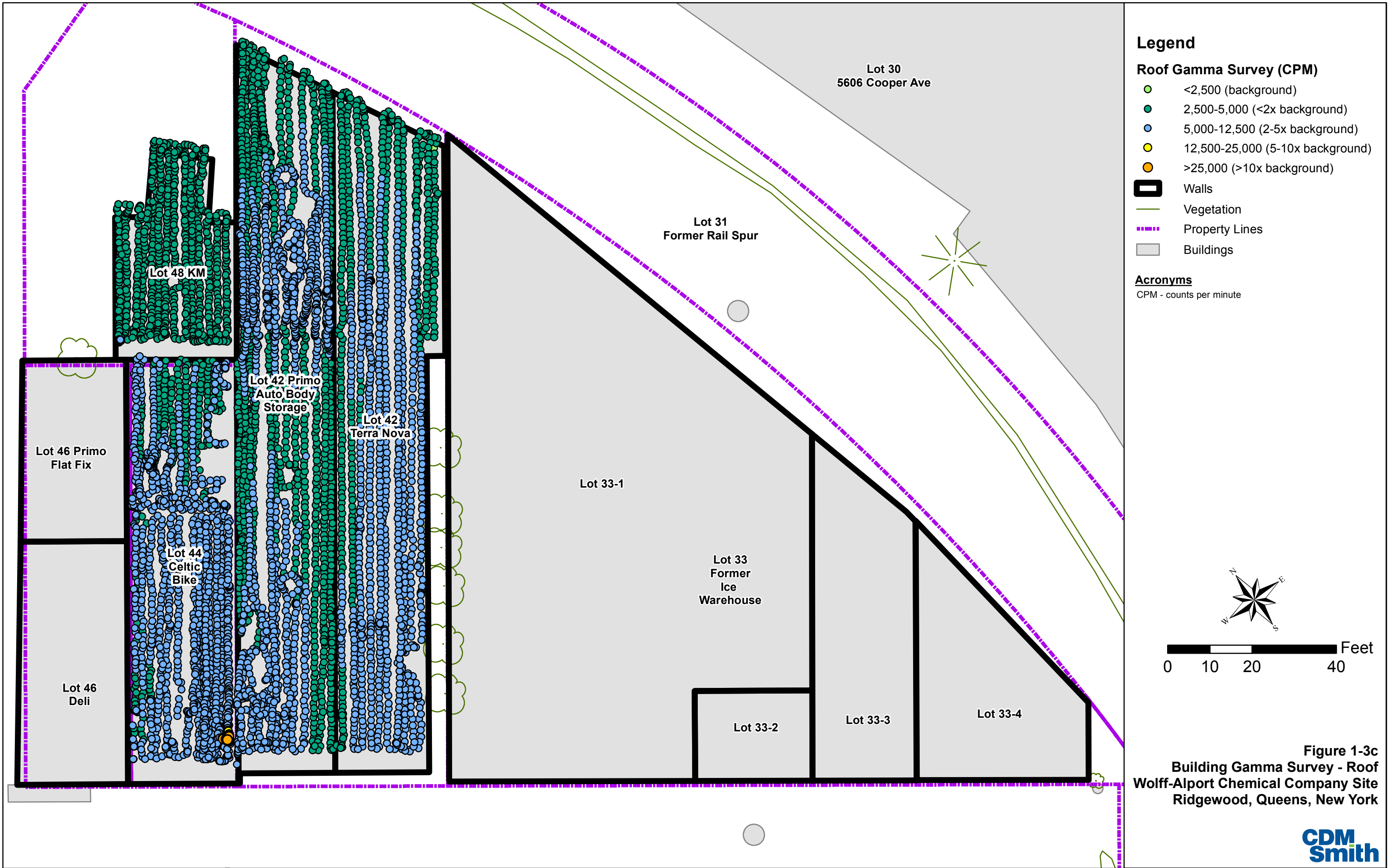
- <2,500 (background)
- 2,500-5,000 (<2x background)
- 5,000-12,500 (2-5x background)
- 12,500-25,000 (5-10x background)
- >25,000 (>10x background)

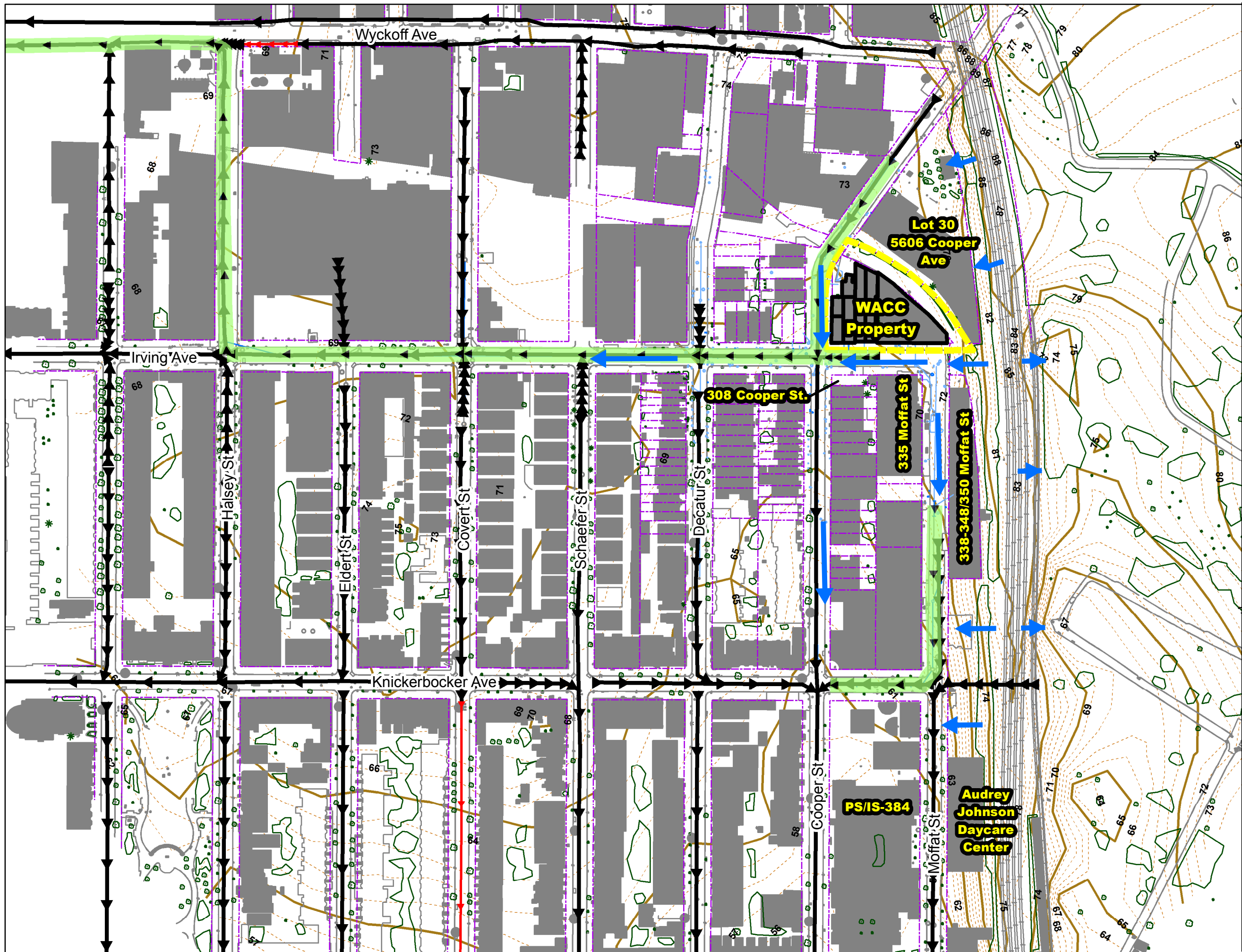
- Interior Walls
- 1 Meter Wall Grid
- Sample Location

Notes:
Scale - 1 meter = 1 grid unit
All data in counts per minute (CPM)
Material sampling locations designated on map.

Figure 1-3a
Page 2 of 2
Building Gamma Survey - Interior Wall
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York
CDM Smith







- WACC Property
- Combined Storm Sewer (approx.)
Shaded green in sewers flowing away from the WACC property.
- Unknown Sewer (approx.)
- WACC Lot Boundaries
- Buildings
- Vegetation
- Property Lines
- Topography Index Contour (5-ft)
- Topography Contour (1-ft)
- Surface Water Flow

Acronyms
 PS/IS - Public School/ Intermediate School
 WACC - Wolff-Alport Chemical Company

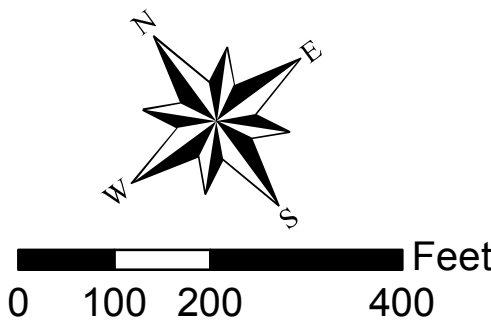










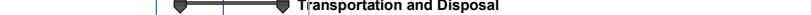
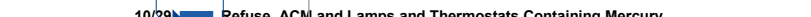


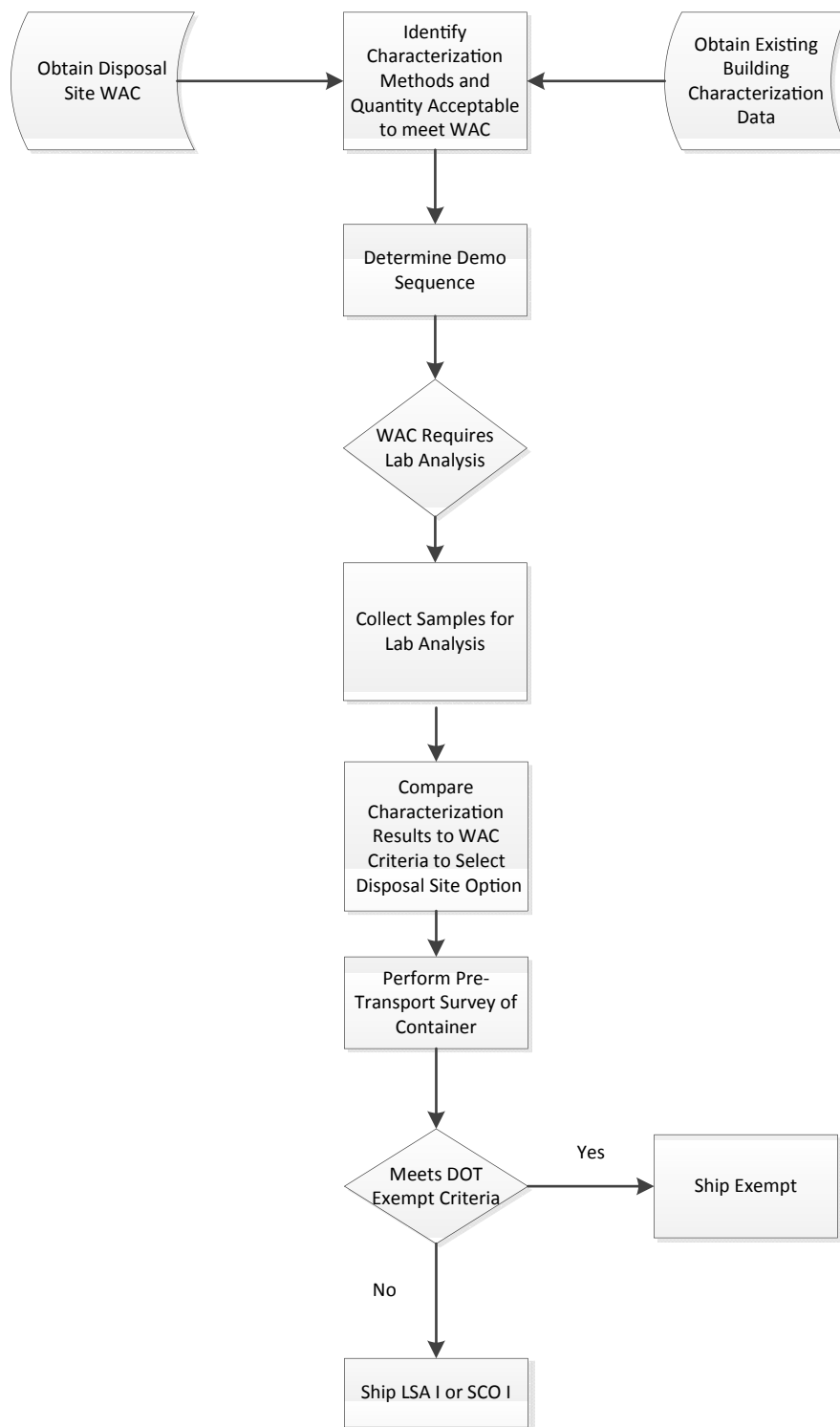
Figure 1-4
 Site Topography and Drainage
 Wolff-Alport Chemical Company Site
 Ridgewood, Queens, New York

General RA Construction Schedule
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

ID	Task Name	Duration	Start	Finish	2020																								2021	
					Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb					
1	Notice to Proceed	1 day	Mon 7/1/19	Mon 7/1/19																										
2	Submittals Prep/Review/Approval and Permitting	66 days	Tue 7/2/19	Thu 10/3/19																										
3	In-situ Worst Case Waste Characterization Samples	3 days	Fri 10/11/19	Wed 10/16/19																										
4	Mobilization	2 days	Fri 10/11/19	Tue 10/15/19																										
5	Site Preparation	15 days	Wed 10/16/19	Tue 11/5/19																										
6	ACM Abatement and Removal of Lamps and Thermostats Containing Mercury	10 days	Thu 11/7/19	Thu 11/21/19																										
7	Building Demolition and Waste Segregation	20 days	Tue 12/10/19	Wed 1/8/20																										
8	Transportation and Disposal	52 days	Tue 10/29/19	Wed 1/15/20																										
9	Refuse, ACM and Lamps and Thermostats Containing Mercury	18 days	Tue 10/29/19	Fri 11/22/19																										
10	Demolition Debris	23 days	Thu 12/12/19	Wed 1/15/20																										
11	Site Restoration	10 days	Mon 1/20/20	Fri 1/31/20																										
12	Demobilization	2 days	Mon 2/3/20	Tue 2/4/20																										

days = working days

Summary



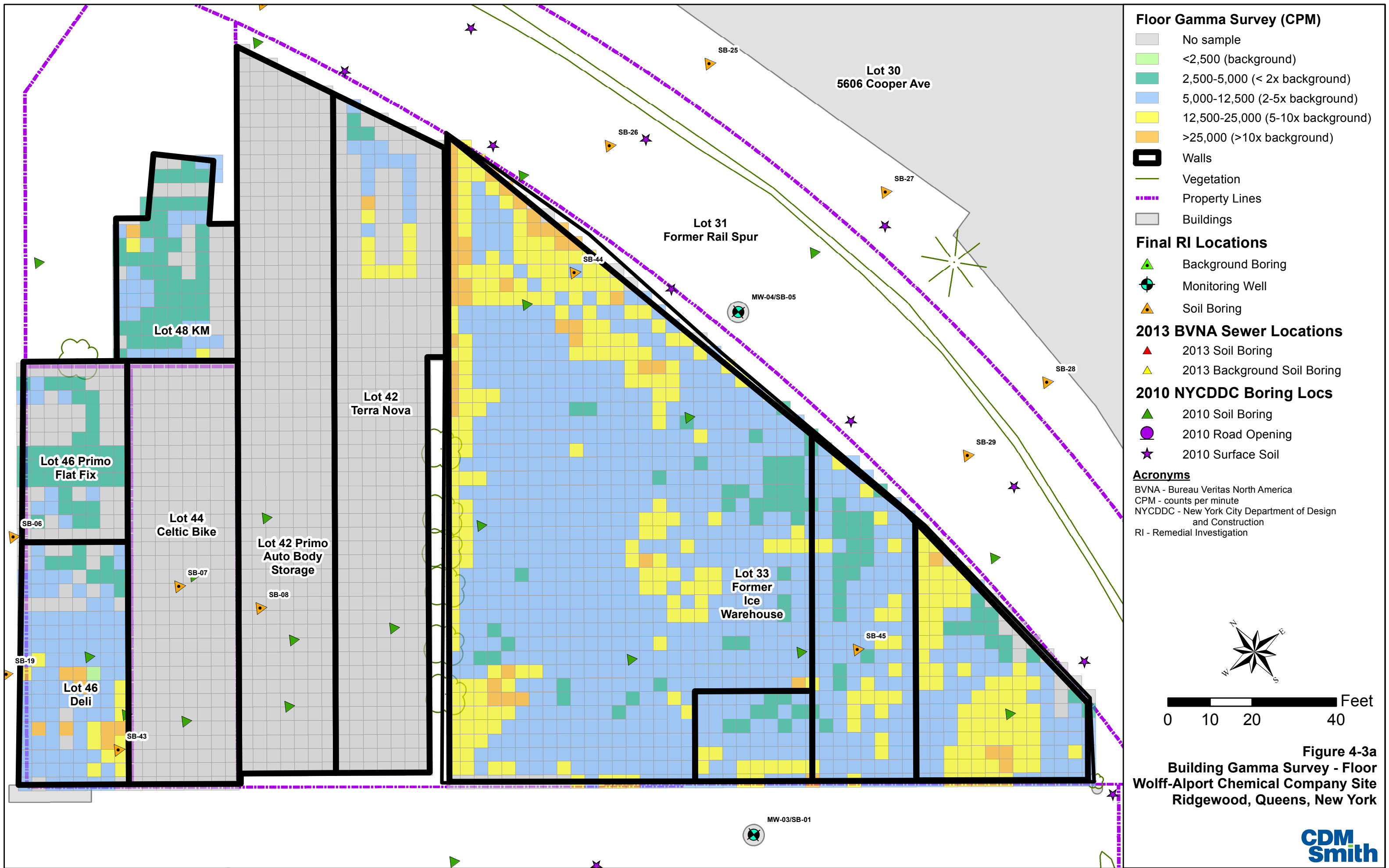
Notes:
DOT - Department of Transportation
LSA - low specific activity
SCO - surface contaminated object
WAC - waste acceptance criteria

Figure 2-1
Waste Characterization and Disposal Flow Chart
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

Appendix A

Appendix A

Radiological Scanning and Sampling Results



Floor Gamma Survey (CPM)

- No sample
- <2,500 (background)
- 2,500-5,000 (< 2x background)
- 5,000-12,500 (2-5x background)
- 12,500-25,000 (5-10x background)
- >25,000 (>10x background)

- Walls
- Vegetation
- Property Lines
- Buildings

Final RI Locations

- Background Boring
- Monitoring Well
- Soil Boring

2013 BVNA Sewer Locations

- 2013 Soil Boring
- 2013 Background Soil Boring

2010 NYCDDC Boring Locs

- 2010 Soil Boring
- 2010 Road Opening
- 2010 Surface Soil

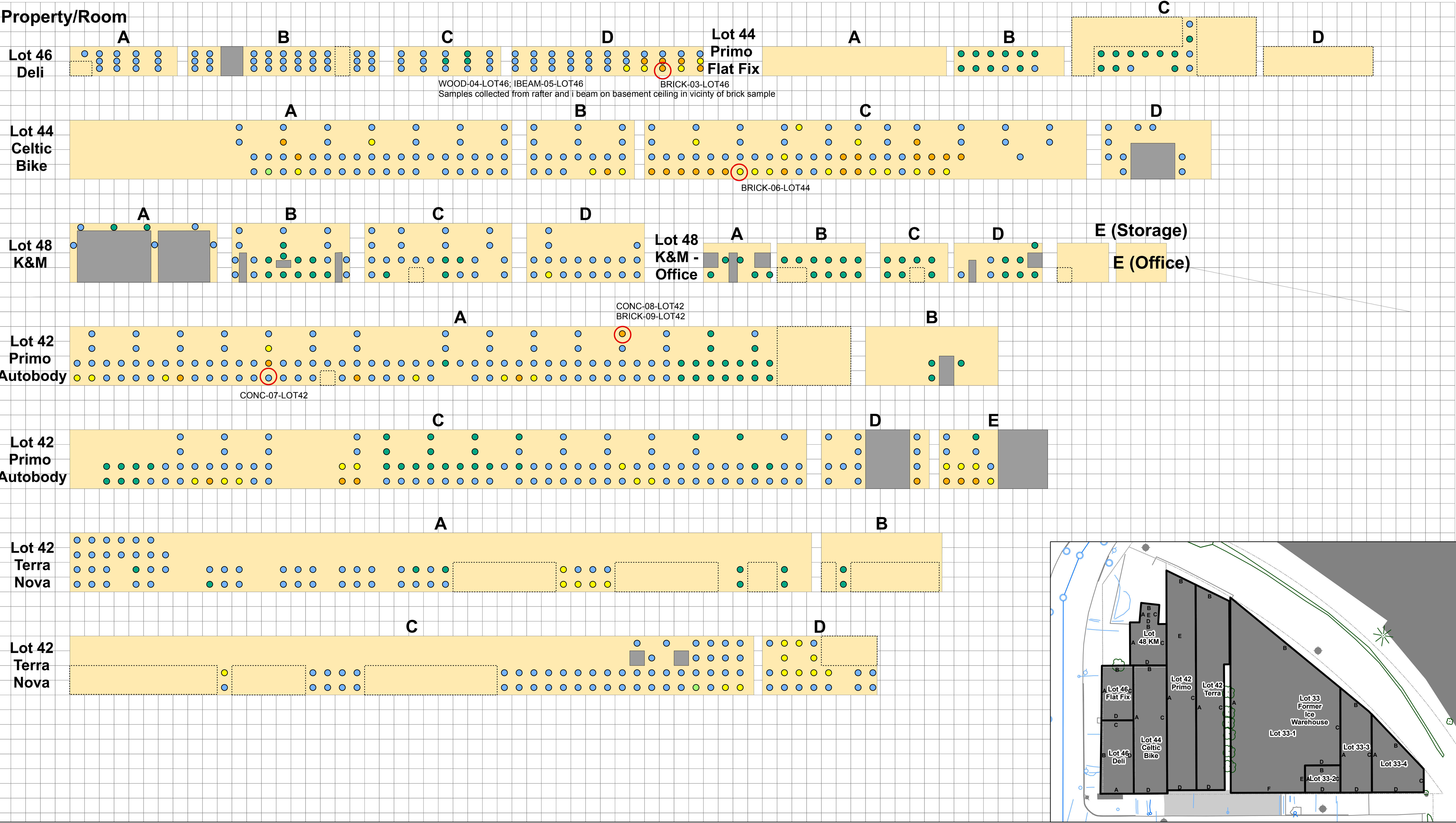
Acronyms

BVNA - Bureau Veritas North America
CPM - counts per minute
NYCDDC - New York City Department of Design and Construction
RI - Remedial Investigation



0 10 20 40 Feet

Figure 4-3a
Building Gamma Survey - Floor
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York



Wall Gamma Survey (CPM)

- <2,500 (background)
- 2,500-5,000 (<2x background)
- 5,000-12,500 (2-5x background)
- 12,500-25,000 (5-10x background)
- >25,000 (>10x background)

- Interior Walls
- 1 Meter Wall Grid
- Door
- Obstruction

Notes:
Scale - 1 meter = 1 grid unit
All data in counts per minute (CPM)
Material sampling locations designated on map.

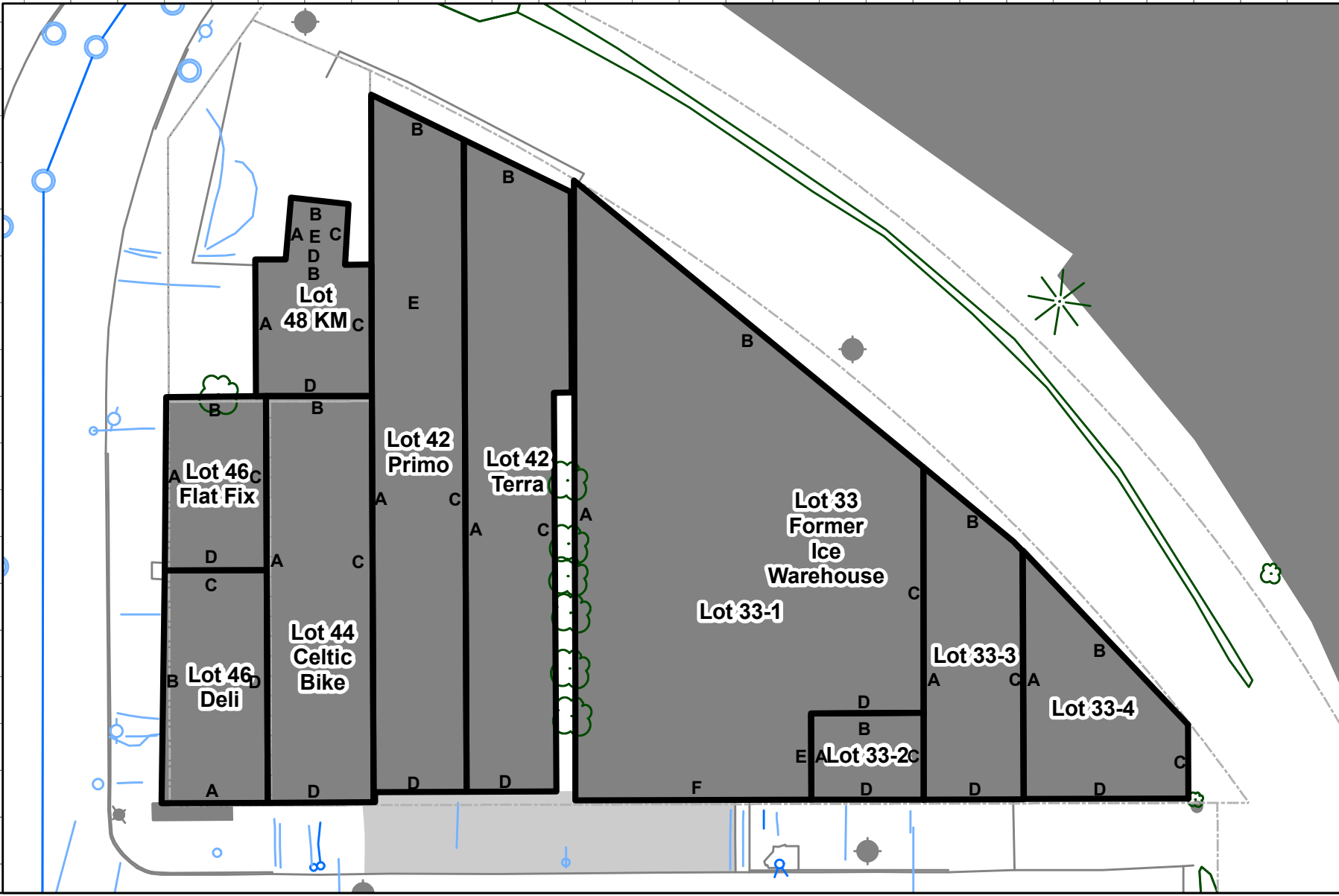
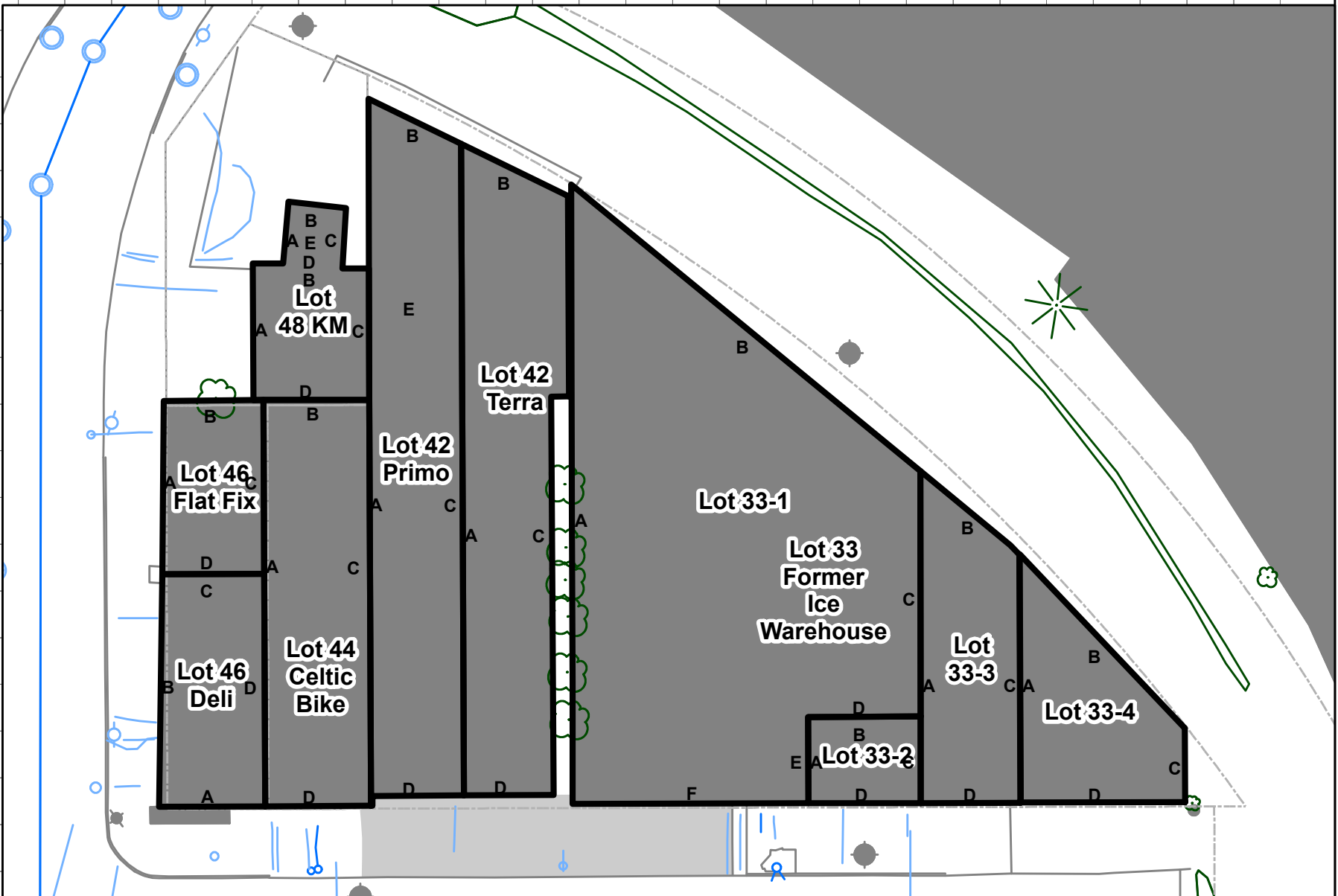
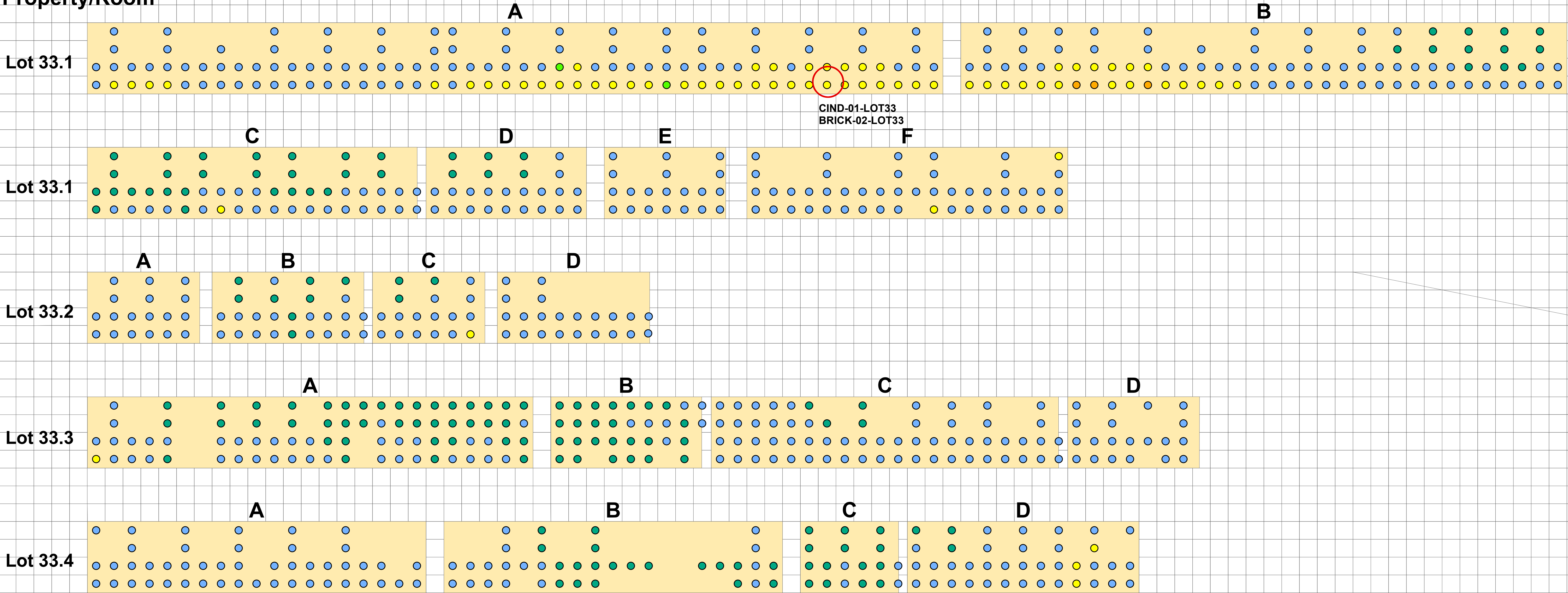


Figure 4-3b
Building Gamma Survey - Interior Wall A
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

Property/Room



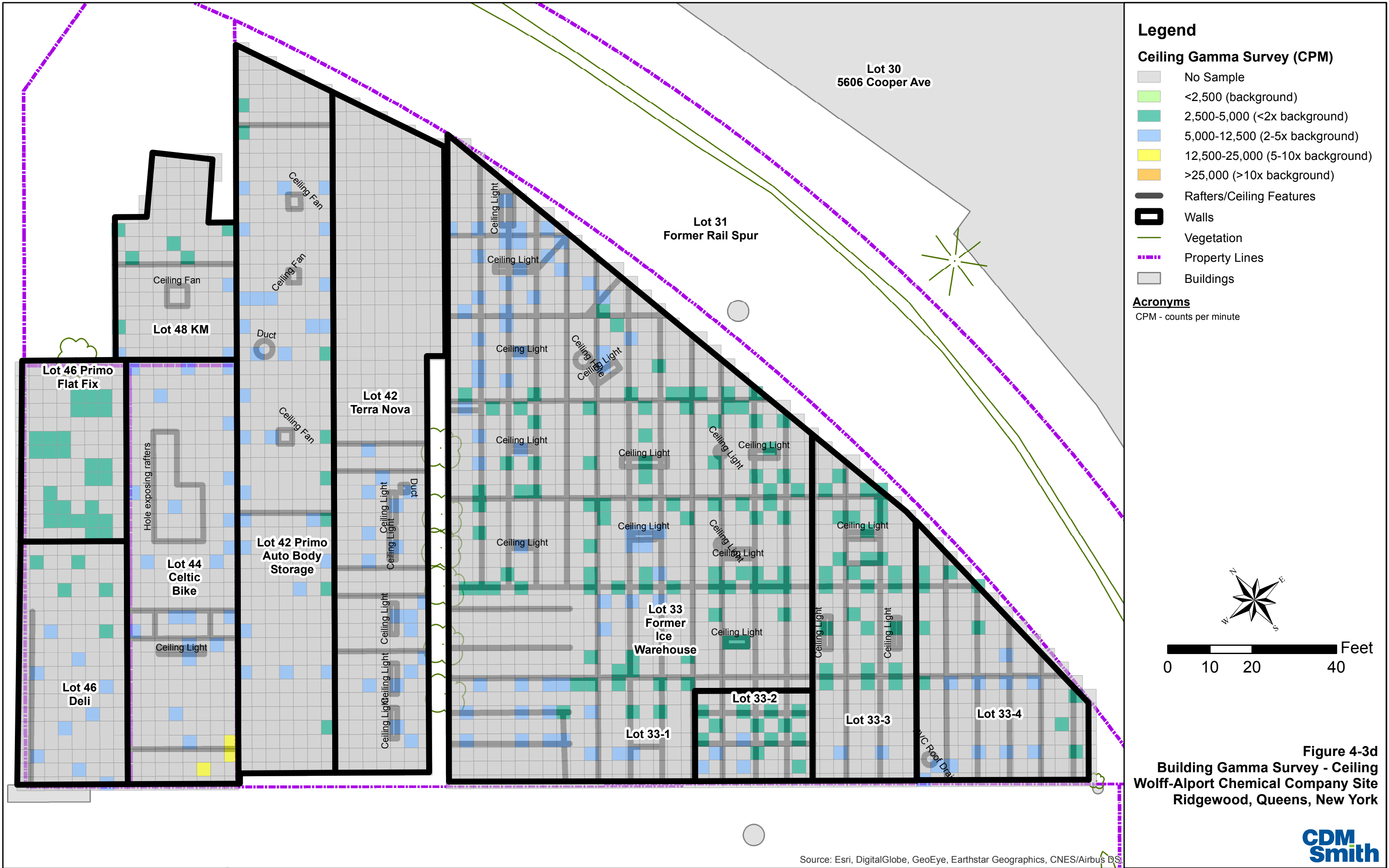
Wall Gamma Survey (CPM)

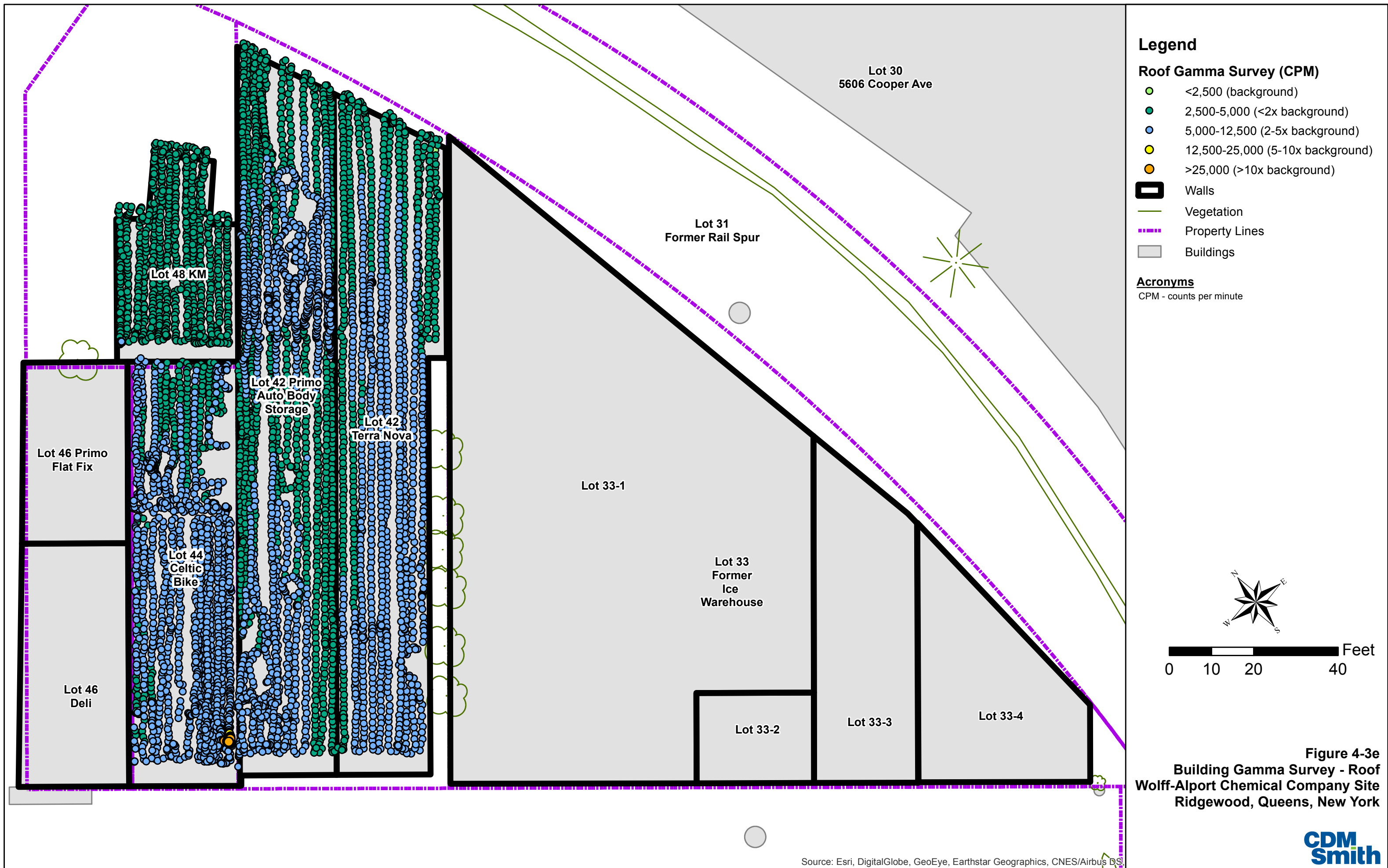
- <2,500 (background)
- 2,500-5,000 (<2x background)
- 5,000-12,500 (2-5x background)
- 12,500-25,000 (5-10x background)
- >25,000 (>10x background)

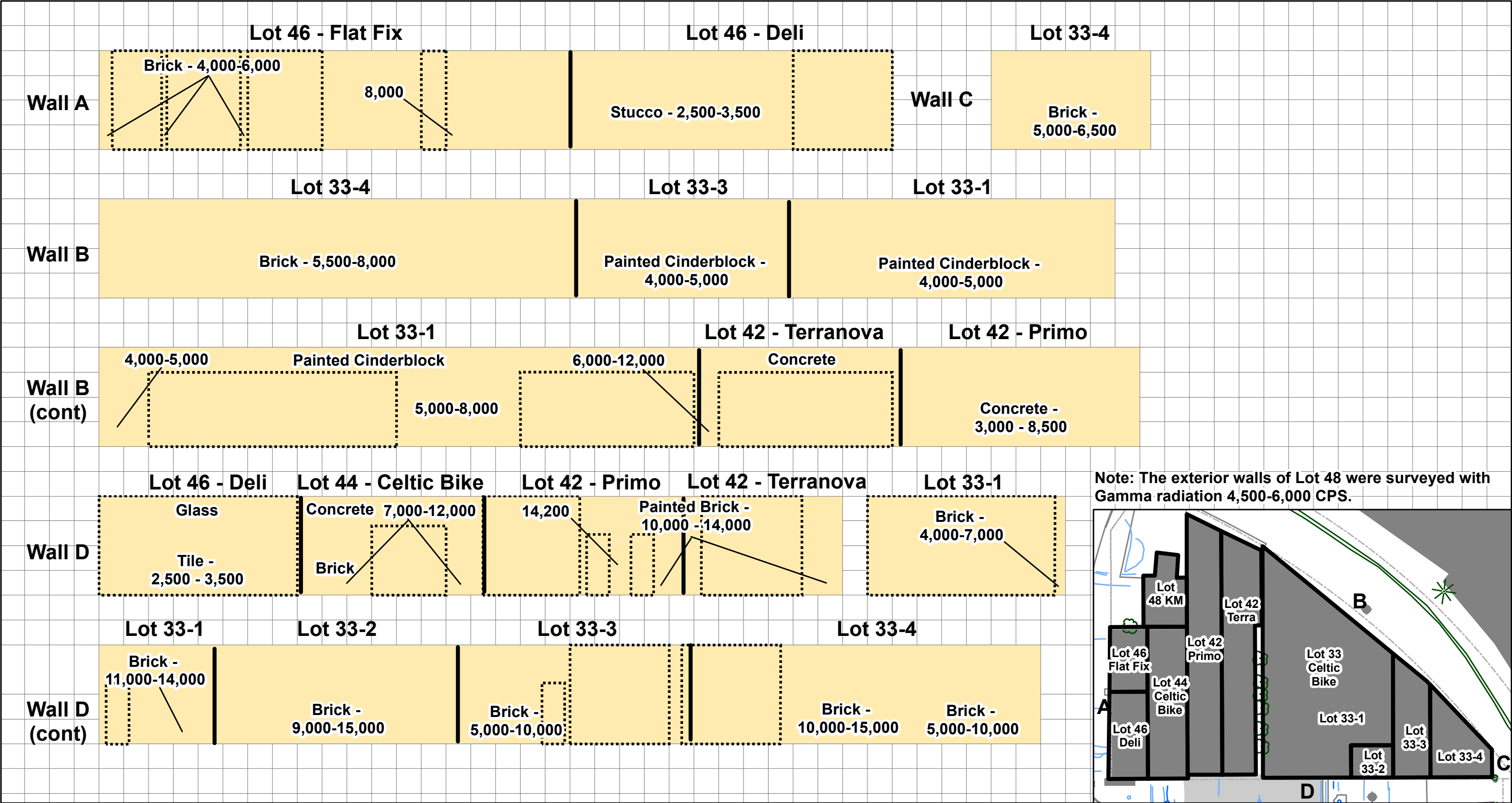
- Interior Walls
- 1 Meter Wall Grid

Notes:
Scale - 1 meter = 1 grid unit
All data in counts per minute (CPM)
Material sampling locations designated on map.

Figure 4-3c
Building Gamma Survey - Interior Wall B
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York







- Interior Walls
- 1 Meter Wall Grid
- Door
- Obstruction

Scale - 1 meter = 1 grid unit
All data in counts per minute (CPM)
Data collected from bottom two meters of wall only
Ranges represent the majority of data collected per wall area.
The high end of the ranges were measured at the base of the walls.

Figure 4-3f
Building Gamma Survey - Exterior Wall
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York



Table 4-14
Building and Sewer Materials Radiological Gamma Spectroscopy Results
Wolff-Alport Chemical Company Site
Ridgewood, NY

Location	Sample Date	Parent Sample*	Potassium-40				Radium-226				Thorium-232			
			Result	CSU (+/- 2 s)	MDA	Q	Result	CSU (+/- 2 s)	MDA	Q	Result	CSU (+/- 2 s)	MDA	Q
Solids Screening Criteria							0.919				1.220			
Building Materials														
LOT33	12/17/2015		23.743	3.068	0.976		3.86	1.593	1.67	J	1.754	0.384	0.183	
LOT33	12/17/2015	BRICK-02-LOT33	22.182	3.137	0.874		3.85	2.149	2.46	J	1.76	0.35	0.352	
LOT33	12/17/2015		2.18	1.14	1.79	J	2.726	1.59	1.86	J	0.579	0.215	0.372	J
LOT42	12/18/2015		33.469	6.481	4.41	J	21.09	10.986	13.5	J	152.66	9.698	1.6	
LOT42	12/17/2015		12.978	2.782	2.18	J	8.217	6.701	8.15	J	57.643	4.018	0.758	
LOT42	12/18/2015		3.917	0.608	0.191		0.349	0.602	0.705	UJ	0.45	0.115	0.077	
LOT44	12/17/2015		32.95	6.769	9.2	J	44.219	16.906	21.1	J	415.17	25.721	2.73	
LOT46	12/17/2015		9.781	1.986	1.93	J	6.619	2.855	3.73	J	7.784	0.813	0.332	J
LOT46	12/17/2015		0.479	0.302	0.469		0.413	0.498	0.723	UJ	0.099	0.075	0.125	U
LOT46	12/17/2015		2.85	0.975	0.613	R	0.147	0.987	1.15	R	0.505	0.178	0.216	R
Sewer Materials														
I-2	11/18/2015		184.87	20.203	22.6	R	76.423	38.146	44.9	J	2206.4	136.66	8.11	
I-4	11/18/2015		215.93	24.123	26.9	R	163.12	51.598	57.8	J	2536.2	155.41	10.2	
I-4	11/18/2015		6.553	1.662	1.58		2.106	1.877	3.11	UJ	4.423	0.624	0.185	
I-5	11/18/2015		6.876	1.31	0.396		1.117	2.253	2.63	UJ	4.67	0.494	0.208	
I-6	11/18/2015		16.45	2.735	0.956		2.686	2.131	2.59	J	1.044	0.289	0.314	
I-6	11/18/2015		6	1.397	1.09		0.347	1.113	2.02	UJ	0.698	0.213	0.366	
I-6	11/18/2015	CONC-I6	8.959	1.766	0.764		0.803	1.05	1.88	UJ	0.785	0.245	0.378	
I-7	11/18/2015		7.137	1.363	1.06		1.003	1.317	2.23	UJ	2.275	0.345	0.197	
I-8	11/18/2015		8.33	1.493	0.417		1.31	1.305	1.5	UJ	0.922	0.252	0.397	
Sewer Sediments														
I-2	11/18/2015		72.749	15.332	20.7	J	69.801	6.939	4.254	J	1079.9	73.029	7.8	J
I-2	11/18/2015		90.381	11.434	13.6	J	45.938	4.762	3.809	J	1218.1	76.238	4.69	J
I-7	11/18/2015		21.624	4.044	2.99	J	6.153	0.837	0.892		116.72	7.319	1.25	J

Notes:

All units in picoCurie per gram (pCi/g).

CSU (+/- s) = combined standard uncertainty (2 sigma)

MDA - minimum detectable activity

Q - qualifier

U - not detected

J - estimated value

R - rejected

* Parent sample ID listed for duplicate samples.

Highlighted cell and bold format indicates that concentration exceeded screening criteria.

Table 4-19
Building Material Scan Data
Wolff-Alport Chemical Company Site
Ridgewood, NY

		Pre-Sampling Total	Removable (Wipe Samples)
Sample ID	Comments/Location Description	Alpha (dpm/100cm ²)	
CIND-01-LOT33	Cinder block from Lot 33	63	0
BRICK-02-LOT33	Brick from Lot 33	131	0
CONC-07-LOT42	In Primo Auto Body main shop (Lot 42)	575	2
CONC-08-LOT42	Concrete collected in Primo Auto main shop (Lot 42)	724	2
BRICK-09-LOT42	Brick collected in Primo Auto main shop (Lot 42) but underneath the overlying concrete	2,363	0
BRICK-06-LOT44	In Primo Auto Body auxillary shop (Lot 44). Brick from short brick wall in front of one of the arches	27,365	0
BRICK-03-LOT46	Brick In basement of deli (Lot 46)	10,376	0
WOOD-04-LOT46	Wood from basement of deli (Lot 46)	63	0
IBEAM-05-LOT46	Rusted steel from I-beam in basement of Jarabacoa Deli	59	0

Notes:

ID - identification

Appendix B

Appendix B

Revised Hazardous Building Materials Survey (provided on CD)



ATHENICA ENVIRONMENTAL
SERVICES, INC.

Environmental Consultants

FINAL REPORT FOR HAZARDOUS MATERIALS SURVEY

PERFORMED AT:

WOLFF-ALPORT CHEMICAL COMPANY SITE
11-33 IRVING AVENUE – LOT 33
11-29 IRVING AVENUE – LOT 42
11-27 IRVING AVENUE – LOT 44
11-25 IRVING AVENUE – LOT 46
15-14 COOPER AVENUE – LOT 48
QUEENS, NY 11385
SERVICE ORDER NO.: 3323-054-004-CS

PERFORMED FOR:



CDM FEDERAL PROGRAMS CORPORATION
555 17TH STREET, SUITE 1100
DENVER, CO 80202
ATTN: MR. MUZAFFAR RAHMANI

PREPARED BY:

ATHENICA ENVIRONMENTAL SERVICES, INC.
45-09 GREENPOINT AVENUE,
LONG ISLAND CITY, NY 11104
ATHENICA PROJECT # 15-111-0420

REVISED REPORT DATE:

FEBRUARY 20TH, 2018



TABLE OF CONTENTS

1.0 BACKGROUND	1
2.0 SCOPE OF WORK	5
3.1 SUMMARY OF ASBESTOS INSPECTION RESULTS	5
3.2 SUMMARY OF LEAD-BASED PAINT INSPECTION RESULTS	5
3.3 SUMMARY OF HAZARDOUS MATERIALS INSPECTION RESULTS.....	5
4.1 ASBESTOS INSPECTION RESULTS	4
4.2 LEAD-BASED PAINT INSPECTION RESULTS.....	4
4.3 HAZARDOUS MATERIALS INSPECTION RESULTS	4
5.0 CONCLUSSIONS & RECOMENDATIONS.....	5
6.0 AREAS NOT ACCESIBLE	5
7.0 REPORT CERTIFICATIONS	5

APPENDICES

8.0	APPENDIX A: Analytical Results, Chain-of-Custody Forms and Certificates of Laboratory Analysis
9.0	APPENDIX B: Personnel Certificates
10.0	APPENDIX C: Consulting Company License
11.0	APPENDIX D: Laboratory Accreditation
12.0	APPENDIX E: Project Documents
13.0	APPENDIX F: Sample Location Drawings

1.0 BACKGROUND

Athenica Environmental Services, Inc. was retained by CDM Smith to perform Site Survey for hazardous materials at the Wolff-Alport Chemical Company Site located at 15-14 Cooper Avenue, Queens NY 11385 (Lot 48), 11-25 Irving Avenue, Queens, NY 11385 (Lot 46), 11-27 Irving Avenue, Queens, NY 11385 (Lot 44), 11-29 Irving Avenue, Queens, NY 11385 (Lot 42) & 11-33 Irving Avenue, Queens, NY 11385 (Lot 33). The scope of the project was to perform hazardous materials surveys limited to asbestos containing materials (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), and various mercury, chlorofluorocarbon (CFC) or tritium containing materials as specified under specifications of service order 3323-054-004-CS.

Access to the site was provided by CDM Smith representatives and surveys were performed in all accessible areas. Areas which were not accessible were assumed to contain asbestos and lead-based paint containing materials, presence or absence of which cannot be confirmed without visual inspection.

Work Order: **Service Order No.: 3323-054-004-CS**

Site: Wolff-Alport Chemical Company Site

Address: 15-14 Cooper Avenue, Queens, NY 11385 – Lot 48
11-33 Irving Avenue, Queens, NY 11385 – Lot 33
11-29 Irving Avenue, Queens, NY 11385 – Lot 42
11-27 Irving Avenue, Queens, NY 11385 – Lot 44
11-25 Irving Avenue, Queens, NY 11385 – Lot 46

The Project Managers/ Inspectors/ Investigator/ Lead-risk Assessors/Hazardous Materials Evaluation responsible for this project were:

Asbestos Inspectors/ Investigator

Wojciech Sikorski	NYC Investigator # 128636 NYS Inspector: 08-08985	Exp.: 02/24/2017 Exp.: 02/2016
Juraj Bardiovsky	NYS Inspector: 08-04420	Exp.: 10/16
Nicholas Del Grosso	NYS Inspector: 15-11534	Exp.: 07/16

Lead-based Paint Risk Assessor

Jeffrey Strykowski	NYS/EPA Risk Assessor: NY-R-113399-2	Exp: 11/01/2017
Juraj Bardiovsky	NYS/EPA Risk Assessor: NY-R-18077-2	Exp: 09/05/2018

Other Hazardous Materials Evaluation

William Silveri Certified Hazardous Materials Mgr. (CHMM) Exp: 03/30/2016

Site Visits: November 12th, 2015, November 13th, 2015 & December 4th, 2015

Report Date: January 5th, 2016
Revised Date: February 20th, 2018

2.0 BACKGROUND

Athenica Environmental Services, Inc. was retained by CDM Smith to perform surveys for hazardous materials at the Wolff-Alport Chemical Company Site located at 15-14 Cooper Avenue, Queens NY 11385 (Lot 48), 11-25 Irving Avenue, Queens, NY 11385 (Lot 46), 11-27 Irving Avenue, Queens, NY 11385 (Lot 44), 11-29 Irving Avenue, Queens, NY 11385 (Lot 42) & 11-33 Irving Avenue, Queens, NY 11385 (Lot 33). The scope of the project was to perform hazardous materials surveys limited to asbestos containing materials (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), and various mercury, chlorofluorocarbon (CFC) or tritium containing materials as specified under specifications of service order 3323-054-004-CS.

Access to the site was provided by CDM Smith representatives and surveys were performed in all accessible areas. Areas which were not accessible were assumed to contain asbestos and lead-based paint containing materials, presence or absence of which cannot be confirmed without visual inspection. The following filed procedures and analysis methods were employed for completion of hazardous materials surveys:

Asbestos Containing Materials Survey Field Procedures:

Guidelines used for the inspection were established by the Environmental Protection Agency (EPA) in the Guidance for Controlling Asbestos Containing Materials in Buildings, Office of Pesticides and Toxic Substances, DOC # 560/5-85-024, and 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA).

Field information was organized as per the AHERA concept of homogenous area (HA). That is, suspect ACM with similar age, appearance, and texture was grouped together, sampled and assessed for condition. The survey consisted of checking and inspecting the building for evidence of ACM. The survey has two components:

- Inspecting materials throughout all locations
- Sampling for laboratory confirmation that asbestos is present.

For the purpose of the inspection, suspect ACM materials have been grouped into three categories:

- Surfacing Materials, e.g.: wall plaster, ceiling plaster and other materials.
- Thermal System Insulation, e.g.: pipe insulation, boiler insulation, duct insulation and other materials.
- Other Miscellaneous Materials, e.g.: floor and ceiling tiles, mastic/glue and other materials.

Asbestos Containing Materials Analysis Methodology:

Bulk samples were analyzed using Polarized Light Microscopy (PLM) and Non-Organically Bound Polarized Light Microscopy (PLM-NOB) and Transmission Electron Microscopy (TEM-NOB) by Laboratory Testing Services, Inc. Laboratory Testing Services, Inc. laboratory is accredited by the New York State Department of Health under their Environmental Laboratory Approval Program (ELAP ID # 10955) and by the National Institute of Standards and Technology (NIST) under their National Voluntary Laboratory Accreditation Program (NVLAP Laboratory ID 101958).

Lead-Based Paint Survey Field Procedures:

The lead-based paint survey was performed by NYS/EPA Risk Assessors certified to conduct lead-based paint activities pursuant to 40 CFR Part 745.226. An X-ray Fluorescence (XRF) device was utilized to determine the presence of lead-based paint in a surface-by-surface investigation, in accordance with the EPA/HUD, and following the Performance Characteristics Sheet (PCS) for the XRF device and the Manufactures Operating instructions. Lead-based paint was identified per the EPA/HUD of lead concentrations equal to or greater than 1.0 mg/cm², via XRF measurements.

The XRF instrument utilized, Niton XLp 302A is a complete lead paint analysis system that quickly, accurately and non-destructively measures the concentration of LBP on surfaces. The Niton XLp 302A relies on the measurement of the K-shell X-rays to determine the amount of lead present in the painted surface. K-shell X-rays can penetrate many layers of paint and allow a good measurement of the lead content of paint to be made without being significantly affected by the thickness or number of layers of paint on the surface of the sample.

The Niton XLp 302A has the ability to analyze and compute corrections for the differences in the energy spectrums relating to different substrates. This analysis of the energy spectrum means that the lead paint reading displayed on the instrument already accounts for any substrate effects and no correction is required by an operator. The Niton XLp 302A field of view is limited to a depth of 3/8", deep enough to handle virtually all painted surfaces, but not prone to detect lead objects located behind the surface.

Upon arrival at the job site and once every four hours or after the day's inspection work was completed, a "validation test" was performed to assure that the instrument was operating properly. A series of three test measurements (three readings each) were taken on a National Institute of Standards & Technology (NIST) Standard Reference Material (SRM) 2573 on a 1.0 mg/cm² calibration block provided by the manufacturer, as required by the instrument's PCS. The individual readings and an average of the three readings were recorded and compared to the standards. In all cases the instrument was functioning within the standard deviation as defined by the manufacturer and the PCS. All validation readings were recorded on Calibration Check Test Results Forms. If for any reason the XRF does not pass the quality control procedures, it is Niton's policy to replace that instrument with an XRF that passes the above criteria for calibration.

The parameters used to interpret XRF results are outlined in the PCS in Appendix. According to the PCS, each XRF result is classified as positive or negative as follows:

Positive: A positive classification indicates that LBP is present on the testing combination at or above the EPA/HUD standard of 1.0 mg/cm². A positive XRF result is any value greater than or equal to the threshold, as specified on the applicable XRF PCS.

Negative: A negative classification indicates that LBP is not present on the testing combination at or above the EPA/HUD standard. A negative XRF result is any value less than the threshold specified on the PCS.

The XRF inspection data specifies which surfaces were tested. Each side of a room is assigned a number for identification purposes. Wall 1 is designated as the side of the room of which the main entrance is situated. The remaining wall designations are assigned clockwise, in numerical order. Multiples of a component along a wall are also assigned clockwise in numerical order.

Lead-based Paint Analysis Methodology:

Paint chip samples shall be collected for inconclusive XRF testing combination and any surface which cannot be tested utilizing an XRF device (e.g., curved or rounded surfaces). Athenica does not anticipate collecting many such samples. Paint chip samples shall, whenever possible, be collected in inconspicuous areas. Paint samples shall be analyzed by Athenica's fully certified and accredited laboratory to perform the required analysis in accordance with New York State, HUD and EPA requirements.

Other Hazardous Building Materials Methodology:

Inspection for other hazardous building materials was conducted and entailed observing and inventorying potential PCB-containing, mercury-containing, tritium and chlorofluorocarbons (CFCs) containing items. Suspect PCB-containing, mercury-containing, tritium and chlorofluorocarbons (CFCs) containing items were closely inspected and inventoried. Findings of the survey can be found in Section 3.0.

3.1 SUMMARY OF ASBESTOS CONTAINING MATERIALS SURVEYS

The asbestos inspection involved a thorough visual examination of all areas affected by planned project and sampling of all suspect materials. The following is a summary of materials which were confirmed as ACM by laboratory analysis to contain asbestos and may be disturbed during this project:

LOCATION	MATERIAL	APPROX ACM QUANTITY
11-33 IRVING AVENUE, QUEENS, NY – LOT 33		
INTERIOR	TAR ON CINDERBLOCK WALL	720 SF
INTERIOR	ABANDONED PANEL BOARD BACKING PAPER	12 SF
EXTERIOR – FRONT FAÇADE BELOW ROOF EDGE	TAR ON FRONT EDGE TRIM BELOW ROOF	100 SF
INTERIOR – LARGE WAREHOUSE AREA	ASSUMED ACM ELECTRICAL PANELS	6 SF
	ASSUMED ACM ELECTRICAL WIRE INSULATION	1,200 LF
INTERIOR – SMALL ELECTRICAL ROOM	ASSUMED ACM ELECTRICAL PANELS	20 SF
	ASSUMED ACM ELECTRICAL WIRE INSULATION	300 LF
EXTERIOR – ROOF	ROOF MEMBRANE/ FLASHING/ PITCH POCKET TAR/ DRAIN FLASHING	13,400 SF
	FLASHING ON ROOF FANS/ GOOSENECK FLASHING	40 SF
11-29 IRVING AVENUE, QUEENS, NY – LOT 42		
EXTERIOR – ROOF	ROOF MEMBRANE	7,800 SF
	ROOF FLASHING/ PARAPET WALL TAR/ FLASHING	1,720 SF
	COPING STONE TAR	150 SF
	VENT STACK TAR/ FLASHING	40 SF
11-27 IRVING AVENUE, QUEENS, NY – LOT 44		
EXTERIOR – ROOF	ROOF MEMBRANE	2,500 SF
	ROOF FLASHING/ PARAPET WALL TAR/ FLASHING	500 SF
	VENT STACK TAR/ FLASHING	10 SF
	TAR ON BEAMS	20 SF
11-25 IRVING AVENUE, QUEENS, NY – LOT 46		
EXTERIOR – FLAT FIX SHOP	TAR/ PAINT ON GATE	30 SF
BACK ROOF (1 ST FLOOR ROOF)	ROOF MEMBRANE	1,000 SF
	ROOF FLASHING PARAPET / WALL TAR/ FLASHING	520 SF
	TAR ON BEAM	40 SF
2 ND FLOOR ROOF	ASSUMED ASBESTOS CONTAINING ROOFING MATERIALS	1,500 SF

11-25 IRVING AVENUE, QUEENS, NY – LOT 46		
FACADES	ASSUMED ASBESTOS CONTAINING WINDOW CAULKING MATERIALS	12 LF
PRIVATE APARTMENTS ON 1ST AND 2ND FLOORS	ASSUMED ASBESTOS CONTAINING SURFACING MATERIALS THROUGHOUT INTERIOR	3,000 SF
	ASSUMED ASBESTOS CONTAINING THERMAL INSULATION MATERIALS THROUGHOUT INTERIOR	120 LF
	ASSUMED ASBESTOS CONTAINING MISCELLANEOUS MATERIALS THROUGHOUT INTERIOR	2,000 SF
15-14 COOPER AVENUE, QUEENS, NY – LOT 48		
SMALL STEP-UP ROOF AT REAR OF BUILDING	ROOF MEMBRANE	90 SF
	ROOF FLASHING	40 SF
	TAR ON WALLS	10 SF
FACADES - AT FRONT OF AUTO REPAIR SHOP	TAR/ PURPLE PAINT ON WALL	320 SF
EXTERIOR - ROOF	ROOF MEMBRANE	1,000 SF
	PARAPET WALL TAR/ ROOF FLASHING	520 SF
	COPING STONE TAR	10 SF
	VENT STACK TAR/ FLASHING	10 SF

Materials which were tested positive must be abated prior to performing any work in the areas where they were found. In order to determine the exact quantities, a detailed scope of work should be determined. In the event that suspect ACM materials are encountered during the renovation project and are to be disturbed by the proposed construction work, all work must immediately stop. The suspect ACM materials should be tested and abated properly should they be found to contain asbestos.

3.2 SUMMARY OF LEAD-BASED PAINT SURVEYS

Paint film surfaces in all areas which are anticipated to be impacted by planned project and were screened for LBP. The following table lists the components which tested positive for LBP. A complete summary of XRF screening data is provided in Section 4.0.

LOCATION	COMPONENT	SUBSTRATE	COLOR	CONDITION
11-29 IRVING AVENUE, QUEENS, NY – LOT 42				
TERRA NOVA	SHELF	METAL	PURPLE	FAIR
TERRA NOVA	COLUMN	METAL	WHITE	INTACT
11-25 IRVING AVENUE, QUEENS, NY – LOT 46				
PRIMO FLAT FIX - TIRE STORAGE	WALL	BRICK	GRAY	POOR
	COLUMN	CONCRETE	WHITE	INTACT
DELI BASEMENT - DELI STORAGE RM.	COLUMN	METAL	WHITE	INTACT
	COLUMN	METAL	ORANGE	POOR
DELI BASEMENT - DELI UTILITY RM.	COLUMN	METAL	ORANGE	POOR
	COLUMN	METAL	ORANGE	POOR
	COLUMN	METAL	ORANGE	POOR
	DOOR CASE	METAL	SILVER	FAIR
PRIVATE APARTMENTS ON 1 ST AND 2 ND FLOORS	SUSPECT LBP COMPONENTS	N/A	N/A	ASSUMED TO CONTAIN LBP DUE TO NO ACCESS
15-14 COOPER AVENUE, QUEENS, NY – LOT 48				
EXTERIOR	WALL	CINDERBLOCK	WHITE	POOR
	WALL	CINDERBLOCK	PURPLE	INTACT
	WALL	CINDERBLOCK	PURPLE	INTACT

3.3 SUMMARY OF HAZARDOUS MATERIALS SURVEYS

The other hazardous materials inspection involved a thorough visual examination of all equipment and items of concern. The following is a summary of the findings of this inspection. As indicated below, the items of environmental concern related to fluorescent light bulbs (mercury) and ballasts (PCBs) as well as potential mercury containing switches.

LOCATION	ITEM OF ENVIRONMENTAL CONCERN	SIZE	QUANTITY	COMMENT
THROUGHOUT ALL BUILDINGS				
THROUGHOUT INTERIOR	FLUORESCENT LIGHT FIXTURE BALLASTS	N/A	N/A	Non-PCB – Limited Visual inspection of light fixture ballasts revealed that light ballasts are labeled as non-PCB containing by manufacturer.
11-33 IRVING AVENUE, QUEENS, NY – LOT 33				
THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	68	See Note 2
	ELECTRIC WALL THERMOSTATS	6 IN.	4	See Note 2
11-29 IRVING AVENUE, QUEENS, NY – LOT 42				
TERRANOVA - THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	40	See Note 2
PRIMO AUTO BODY - THROUGHOUT INTERIOR	FLOURESCENT LIGHT BALLASTS	N/A	40	See Notes 1
	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	40	See Note 2
11-27 IRVING AVENUE, QUEENS, NY – LOT 44				
THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	2 FT.	6	See Note 2
		4 FT.	10	See Note 2
11-25 IRVING AVENUE, QUEENS, NY – LOT 46				
THROUGHOUT – PRIMO FLAT FIX	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	2 FT.	6	See Note 2
		4 FT.	10	See Note 2
THROUGHOUT – DELI STORE		2 FT.	30	See Note 2
15-14 COOPER AVENUE, QUEENS, NY – LOT 48				
THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	24	See Note 2

Notes:

1. Two (2) ballasts were presumed to be associated with each fluorescent light fixture.
2. Each fluorescent light bulb and thermostat was presumed to contain mercury.

4.1 ASBESTOS INSPECTION RESULTS – 11-33 IRVING AVENUE, QUEENS, NY – LOT 33

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
1.	1.	Interior/ Exterior	Brick Mortar	3	Non-ACM	Negative by PLM analysis.
	2.					
	3.					
2.	4.		Cinderblock Mortar	3	Non-ACM	Negative by PLM analysis.
	5.					
	6.					
3.	7.	Interior – Throughout	Gypsum Wall Board	2	Non-ACM	Negative by PLM analysis.
	8.					
4.	9.		Gypsum Ceiling Board	2	Non-ACM	Negative by PLM analysis.
	10.					
5.	11.		Black Paper on Sheetrock Ceiling	2	Non-ACM	Negative by PLM analysis.
	12.					
6.	13.		Interior Window Putty	2	Non-ACM	Negative by NOB-TEM analysis.
	14.					
7.	15.		Tar on Cinderblock Wall	2	ACM	Positive by NOB-PLM analysis. Found in East Room on West Wall.
	16.					
8.	17.		White Paint on Cinderblock Walls	2	Non-ACM	Negative by NOB-TEM analysis.
	18.					
9.	19.		Brown Paper Door Insulation	2	Non-ACM	Negative by PLM analysis.
	20.					
10.	21.		Abandoned Panel Board Backing Paper	2	ACM	Positive by NOB-PLM analysis. Abandoned panel box was found in on the floor of East Room.
	22.					
11.	23.		Abandoned Panel Black Components (Bakelite)	2	Non-ACM	Negative by NOB-TEM analysis.
	24.					
12.	25.	Exterior	Stucco	2	Non-ACM	Negative by PLM analysis.
	26.					
13.	27.		Pink Paint on Stucco	2	Non-ACM	Negative by PLM analysis.
	28.					
14.	29.		Sidewalk Exp. Joint Caulking	2	Non-ACM	Negative by NOB-TEM analysis.
	30.					
15.	31.		Asphalt At Exterior Base of Building	2	Non-ACM	Negative by NOB-TEM analysis.
	32.					
16.	33.		Textured Gray Paint on Metal Beams	2	Non-ACM	Negative by NOB-TEM analysis.
	34.					
17.	35.		Concrete Cement Board at Ceiling	2	Non-ACM	Negative by PLM analysis.
	36.					
18.	37.		Tar on Front Edge Trim below Roof	2	ACM	Positive by NOB-PLM analysis.
	38.					

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
19.	39.	Exterior - Roof	Roof Insulation	2	Non-ACM	Negative by NOB-TEM analysis.
	40.					
20.	41.		Roof Membrane	2	ACM	Positive by NOB-TEM analysis.
	42.					
21.	43.		Roof Flashing	2	ACM	Positive by NOB-TEM analysis.
	44.					
22.	45.		Pitch Pocket Tar	2	ACM	Positive by NOB-TEM analysis.
	46.					
23.	47.		Flashing on Roof Fans	2	ACM	Positive by NOB-TEM analysis.
	48.					
24.	49.	Drain Flashing	2	ACM	Positive by NOB-TEM analysis.	
	50.					
25.	51.	Gooseneck Flashing	2	ACM	Positive by NOB-TEM analysis.	
	52.					
N/A	N/A	Interior	Metal Floor	0	Non-Suspect	
N/A	N/A		Water Pump Pipe	0	Non-Suspect	Insulation was not observed
N/A	N/A		PVC Drain Pipe	0	Non-Suspect	Insulation was not observed
N/A	N/A		Metal Gate	0	Non-Suspect	
N/A	N/A		Assumed ACM Contaminated Debris in Water	0	Assumed ACM	Some debris was observed in large water puddle. Due to live electricity/ broken conduits in the area of the water puddle, samples from debris which may contain roofing materials were not collected. Debris should be sampled when the area is isolated form electric power.
N/A	N/A	Interior – Large Warehouse Area	Assumed ACM Panels	0	Assumed ACM	Live power prohibited sampling. Materials must be assumed until sampled.
N/A	N/A		Assumed ACM Wire Insulation	0	Assumed ACM	
N/A	N/A	Interior – Small Electrical Room	Assumed ACM Panels	0	Assumed ACM	
N/A	N/A		Assumed ACM Wire Insulation	0	Assumed ACM	
			Total for Building:	52	Affected ACM Quantity	

4.1 ASBESTOS INSPECTION RESULTS – 11-29 IRVING AVENUE, QUEENS, NY – LOT 42

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
1.	1.	Interior – Throughout	Brick Mortar	3	Non-ACM	Negative by PLM analysis.
	2.					
	3.					
2.	4.		Cinderblock Mortar	3	Non-ACM	Negative by PLM analysis.
	5.					
	6.					
3.	7.		Ceiling Sheetrock	2	Non-ACM	Negative by PLM analysis.
	8.					
4.	9.	Interior – West Half of Building	Wall Plaster (Scratch Coat Only)	5	Non-ACM	Negative by PLM analysis.
	10.					
	11.					
	12.					
5.	13.					
	14.	Interior – East Wall	Interior Window Putty	2	Non-ACM	Negative by NOB-TEM analysis.
6.	15.					
	16.	Interior – West Half of Building (Upstairs Office)	12x12 Floor Tiles/ Glue	2	Non-ACM	Negative by NOB-TEM analysis.
	17.					
7.	18.	Interior – Throughout	Door Insulation (Front & Back Doors)	2	Non-ACM	Negative by PLM analysis.
	19.					
8.	20.	Interior – Throughout	Joint Caulking on Metal Floor Plate	2	Non-ACM	Negative by NOB-TEM analysis.
	21.					
9.	22.	Exterior - Roof	Roof Membrane (Bottom Layer)	2	ACM	Positive by NOB-TEM analysis.
	23.		Roof Membrane (Top Layer)	2	ACM	Positive by NOB-TEM analysis.
10.	24.		Roof Flashing (Bottom Layer)	2	ACM	Positive by NOB-TEM analysis.
	25.					
11.	26.		Roof Flashing (Top Layer)	2	ACM	Positive by NOB-TEM analysis.
	27.					
12.	28.		Coping Stone Tar	2	ACM	Positive by NOB-TEM analysis.
	29.					
13.	30.		Parapet Wall Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	31.					
14.	32.		Vent Stack Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	33.					
15.	34.		Loose Car Parts/ Body Lining	2	Non-ACM	Negative by NOB-TEM analysis.
	35.					
N/A	N/A		Roof Wood Decking Below Roofing	0	Non-Suspect	
N/A	N/A		Metal Floor	0	Non-Suspect	
N/A	N/A	Interior - Throughout	Exposed Pipes Throughout	0	Non-Suspect	All visible pipes were found to be non-insulated.
N/A	N/A		Electrical Wiring	0	Non-Suspect	Non-suspect vinyl wiring was observed in panels and conduits.
N/A	N/A		Electrical Panels	0	Non-Suspect	Metal electrical panels were observed.

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
			Total for Building:	37	Affected ACM Quantity	

4.1 ASBESTOS INSPECTION RESULTS – 11-27 IRVING AVENUE, QUEENS, NY – LOT 44

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
1.	1.	Interior - Throughout	Brick Mortar	3	Non-ACM	Negative by PLM analysis.
	2.					
	3.					
2.	4.		Cinderblock Mortar	3	Non-ACM	Negative by PLM analysis.
	5.					
	6.					
3.	7.		White Paint on Cinderblocks	2	Non-ACM	Negative by NOB-TEM analysis.
	8.					
4.	9.		Wall Sheetrock	2	Non-ACM	Negative by PLM analysis.
	10.					
5.	11.		Floor Debris	3	Non-ACM	Negative by PLM analysis.
	12.					
	13.					
6.	14.		Joint Caulking on Metal Plate	2	Non-ACM	Negative by PLM analysis.
	15.					
7.	16.	Exterior - Roof	Roof Membrane (Bottom Layer)	2	ACM	Positive by NOB-TEM analysis.
8.	18.		Roof Membrane (Top Layer)	2	ACM Contaminated	Positive by NOB-TEM analysis.
	19.					
9.	20.		Parapet Wall Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	21.					
10.	22.		Tar on Beams	2	ACM	Negative by NOB-TEM analysis.
	23.					
11.	24.		Vent Stack Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	25.					
N/A	N/A		Interior - Throughout	Metal Floor	0	Non-Suspect
N/A	N/A	Electrical Wiring		0	Non-Suspect	Non-suspect vinyl wiring was observed in panels and conduits.
N/A	N/A	Electrical Panels		0	Non-Suspect	Metal electrical panels were observed.
			Total for Building:	25	Affected ACM Quantity	

4.1 ASBESTOS INSPECTION RESULTS – 11-25 IRVING AVENUE, QUEENS, NY – LOT 46

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
1.	1.	Interior- Basement	Brick Mortar	3	Non-ACM	Negative by PLM analysis.
	2.					
	3.					
2.	4.		White Coating on Bricks	2	Non-ACM	Negative by PLM analysis.
	5.					
3.	6.		Wall Sheetrock	2	Non-ACM	Negative by PLM analysis.
	7.					
4.	8.		Ceiling Sheetrock	2	Non-ACM	Negative by PLM analysis.
	9.					
5.	10.		Beam Plaster/ Cement	3	Non-ACM	Negative by PLM analysis.
	11.					
	12.					
6.	13.	Interior – Ground Floor Deli Store (Toilet)	Ceramic Floor Tile Grout	2	Non-ACM	Negative by PLM analysis.
	14.					
7.	15.		Ceramic Floor Tile Setting Cement	2	Non-ACM	Negative by PLM analysis.
	16.					
8.	17.		Ceramic Wall Tile Grout	2	Non-ACM	Negative by PLM analysis.
	18.					
9.	19.		Ceramic Wall Tile Setting Cement	2	Non-ACM	Negative by PLM analysis.
	20.					
10.	21.	Interior – Ground Floor Deli Store (Behind Counter)	Mastic Associated with 12x12 Floor Tiles	2	Non-ACM	Negative by NOB-TEM analysis.
	22.					
11.	23.		12x12 Floor Tiles (Black)	2	Non-ACM	Negative by NOB-TEM analysis.
	24.					
12.	25.		12x12 Floor Tiles (Grey)	2	Non-ACM	Negative by NOB-TEM analysis.
	26.					
13.	27.	Interior – Flat Fix Shop (Back Portion of Building)	Ceiling Sheetrock	2	Non-ACM	Negative by PLM analysis.
	28.					
14.	29.	Exterior – Flat Fix Shop	Grey Stucco on Building Façade	2	Non-ACM	Negative by PLM analysis.
	30.					
15.	31.		Caulking on Gate (Silver)	2	Non-ACM	Negative by NOB-TEM analysis.
	32.					
16.	33.		Caulking on Gate (Brown)	2	Non-ACM	Negative by NOB-TEM analysis.
	34.					
17.	35.		Tar/ Paint on Gate	2	ACM	Positive by NOB-PLM analysis.
	36.					
18.	37.		Coating on Bricks	2	Non-ACM	Negative by PLM analysis.
	38.					

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
19.	39.	Back Roof (1 st Floor Roof)	Roof Membrane (Bottom Layer)	2	ACM	Positive by NOB-TEM analysis.
	40.					
20.	41.		Roof Membrane (Top Layer)	2	ACM Contaminated	Positive by NOB-TEM analysis.
	42.					
21.	43.		Parapet Wall Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	44.					
22.	45.		Tar on Beam	2	ACM	Positive by NOB-TEM analysis.
	46.					
N/A	N/A	2 nd Floor Roof	Assumed Asbestos Containing Roofing Materials	0	Assumed ACM	Access to materials on 2 nd Floor Roof, areas belonging to the private apartments and Façade at 2 nd Floor were not accessible during the building surveys and must be assumed to contain asbestos materials.
N/A	N/A	Facades	Assumed Asbestos Containing Window Caulking Materials			
			Assumed Asbestos Containing Materials throughout Facades			
N/A	N/A	Private Apartments on 1 st and 2 nd Floors	Assumed Asbestos Containing Surfacing Materials Throughout Interior	0	Assumed ACM	Wall and Ceiling Plaster may be present and must be assumed to exist until tested.
N/A	N/A		Assumed Asbestos Containing Thermal Insulation Materials Throughout Interior	0	Assumed ACM	Miscellaneous materials which may be present include pipe insulation must be assumed to exist until tested.
N/A	N/A		Assumed Asbestos Containing Miscellaneous Materials Throughout Interior	0	Assumed ACM	Miscellaneous materials which may be present include interior caulking, grouts/ mortars/ setting bed/ soft cement associated with Kitchen and Bathroom tiles, floor tiles/ mastics/ glues/ flooring, wall/ ceiling materials, sink under coatings must be assumed to exist until tested.
N/A	N/A					
N/A	N/A	Interior - Throughout	Electrical Wiring	0	Non-Suspect	Non-suspect vinyl wiring was observed in panels and conduits.
N/A	N/A		Electrical Panels	0	Non-Suspect	Metal electrical panels were observed.
			Total for Building:	46	Affected ACM Quantity	

4.1 ASBESTOS INSPECTION RESULTS - 15-14 COOPER AVENUE, QUEENS, NY – LOT 48

HA No.	Sample Numbers	Location	Material	No. of Samples	Inspection Results	Notes/Comments
1.	1.	Interior/ Exterior	Brick Mortar	3	Non-ACM	Negative by PLM analysis.
	2.					
	3.					
2.	4.		Cinderblock Mortar	3	Non-ACM	Negative by PLM analysis.
	5.					
	6.					
3.	7.	Interior	White Coating on Bricks	2	Non-ACM	Negative by NOB-TEM analysis.
	8.					
4.	9.		Wall Sheetrock	2	Non-ACM	Negative by PLM analysis.
	10.					
5.	11.		Ceiling Sheetrock	2	Non-ACM	Negative by PLM analysis.
	12.					
6.	13.	Small Step-up Roof at Rear of Building	Roof Membrane	2	ACM	Positive by NOB-TEM analysis.
	14.					
7.	15.		Roof Flashing	2	ACM	Positive by NOB-PLM analysis.
	16.					
8.	17.		Tar on Walls	2	ACM	Positive by NOB-TEM analysis.
	18.					
9.	19.	Facades	Tar Above Store/ Garage Gate	2	Non-ACM	Negative by NOB-TEM analysis.
	20.					
10.	21.		Tar/ Purple Paint on Wall	2	ACM	Positive by NOB-TEM analysis.
	22.					
11.	23.		Door Mortar	2	Non-ACM	Negative by PLM analysis.
	24.					
12.	25.	Exterior - Roof	Roof Membrane (Bottom Layer)	2	ACM	Positive by NOB-TEM analysis.
	26.					
13.	27.		Roof Membrane (Top Layer)	2	ACM Contaminated	Negative by NOB-TEM analysis.
	28.					
14.	29.		Parapet Wall Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	30.					
15.	31.		Coping Stone Tar	2	ACM	Positive by NOB-TEM analysis.
	32.					
16.	33.		Vent Stack Tar/ Flashing	2	ACM	Positive by NOB-TEM analysis.
	34.					
17.	35.	Gooseneck Flashing	2	Non-ACM	Negative by NOB-TEM analysis.	
	36.					
N/A	N/A	Interior - Throughout	Electrical Wiring	0	Non-Suspect	Non-suspect vinyl wiring was observed in panels and conduits.
N/A	N/A		Electrical Panels	0	Non-Suspect	Metal electrical panels were observed.
			Total for Building:	36	Affected ACM Quantity	

4.2 LEAD-BASED PAINT RESULTS – 11-33 IRVING AVENUE, QUEENS, NY – LOT 33

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
East Room	1		Column	Metal	Gray	Intact	0.3	Non-LBP
East Room	-	5	Beam	Metal	Gray	Intact	0.3	Non-LBP
East Room	-	3	Beam	Metal	Gray	Intact	0.2	Non-LBP
East Room	-		Ceiling	Sheetrock	Gray	Poor	0.0	Non-LBP
East Room	-		Ceiling	Sheetrock	Gray	Poor	0.0	Non-LBP
East Room	-		Ceiling	Sheetrock	Gray	Poor	0.0	Non-LBP
East Room	-	1	Beam	Metal	Gray	Fair	0.3	Non-LBP
East Room	1		Door Case	Metal	Gray	Poor	0.2	Non-LBP
East Room	2		Wall	Brick	White	Intact	0.0	Non-LBP
East Room	2		Wall	Cinderblock	White	Intact	0.0	Non-LBP
East Room	2	1	Molding	Wood	White	Intact	0.0	Non-LBP
East Room	2	2	Molding	Wood	White	Fair	0.0	Non-LBP
East Room	2	3	Molding	Wood	White	Fair	0.0	Non-LBP
East Room	2		Wall	Cinderblock	Black	Fair	0.0	Non-LBP
East Room	2		Column	Metal	Gray	Intact	0.4	Non-LBP
East Room	2		Pipe	Metal	Gray	Poor	0.3	Non-LBP
Middle Room	1	1	Column	Brick	White	Intact	0.0	Non-LBP
Middle Room	1	2	Column	Brick	White	Intact	0.0	Non-LBP
Middle Room	1	2	Column	Brick	Dark Brown	Intact	0.0	Non-LBP
Middle Room	1		Wall	Brick	Dark Brown	Intact	0.0	Non-LBP
Middle Room	1		Wall	Brick	White	Intact	0.0	Non-LBP
Middle Room	1		Window Sill	Metal	White	Poor	0.0	Non-LBP
Middle Room	1		Window Sash	Metal	White	Poor	0.0	Non-LBP
Middle Room	1		Window Header	Metal	White	Fair	0.0	Non-LBP
Middle Room	1	1	Door Case	Metal	Gray	Intact	0.2	Non-LBP
Middle Room	1	2	Door Case	Metal	Dark Brown	Fair	0.0	Non-LBP
Middle Room	1	2	Door	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2		Wall	Sheetrock	Dark Brown	Poor	0.0	Non-LBP
Middle Room	2		Wall	Sheetrock	White	Poor	0.0	Non-LBP
Middle Room	2	1	Electric Conduit	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2	1	Electric Conduit	Metal	White	Intact	0.0	Non-LBP
Middle Room	2	2	Electric Conduit	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2	3	Electric Conduit	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2	3	Electric Conduit	Metal	White	Intact	0.0	Non-LBP
Middle Room	2	4	Electric Conduit	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2	4	Electric Conduit	Metal	White	Intact	0.0	Non-LBP
Middle Room	2	5	Electric Conduit	Metal	Dark Brown	Intact	0.2	Non-LBP
Middle Room	2	5	Electric Conduit	Metal	White	Intact	0.2	Non-LBP
Middle Room	2	1	Door Case	Wood	Dark Brown	Poor	0.0	Non-LBP
Middle Room	2	1	Door Jamb	Wood	Gray	Intact	0.0	Non-LBP
Middle Room	2	1	Door	Wood	White	Intact	0.0	Non-LBP
Middle Room	2	2	Door	Metal	Dark Brown	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Middle Room	2	2	Door Case	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2	2	Door Jamb	Metal	Dark Brown	Intact	0.0	Non-LBP
Middle Room	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Middle Room	2	1	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	2	3	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	3	1	Column	Cinderblock	White	Intact	0.0	Non-LBP
Middle Room	3	2	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	3	3	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	3	4	Column	Cinderblock	White	Intact	0.0	Non-LBP
Middle Room	3	5	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	3		Wall	Metal	White	Intact	0.0	Non-LBP
Middle Room	3		Wall	Metal	White	Intact	0.0	Non-LBP
Middle Room	4		Wall	Brick	White	Intact	0.0	Non-LBP
Middle Room	4		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Middle Room	4		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Middle Room	4	4	Column	Cinderblock	White	Intact	0.0	Non-LBP
Middle Room	4	5	Column	Cinderblock	White	Intact	0.0	Non-LBP
Middle Room	4	1	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	4	2	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	4	3	Column	Wood	White	Intact	0.0	Non-LBP
Middle Room	4	1	Window Sash	Metal	White	Poor	0.0	Non-LBP
Middle Room	4	2	Window Sash	Metal	White	Poor	0.2	Non-LBP
Middle Room	4	3	Window Sash	Metal	White	Poor	0.0	Non-LBP
Middle Room	-		Ceiling	Sheetrock	White	Poor	0.0	Non-LBP
Middle Room	-		Ceiling	Sheetrock	White	Poor	0.0	Non-LBP
Middle Room	-		Ceiling	Sheetrock	White	Poor	0.0	Non-LBP
Middle Room	-	1	Beam	Metal	Gray	Intact	0.2	Non-LBP
Middle Room	-	2	Beam	Metal	Gray	Intact	0.0	Non-LBP
Middle Room	-	3	Beam	Metal	Gray	Intact	0.0	Non-LBP
Middle Room	-	4	Beam	Metal	Gray	Intact	0.0	Non-LBP
Middle Room	-	5	Beam	Metal	Gray	Intact	0.0	Non-LBP
Middle Room	-	1	Vent Cover	Metal	White	Intact	0.0	Non-LBP
Middle Room	-	2	Vent Cover	Metal	White	Intact	0.0	Non-LBP
Middle Room	-	1	Pipe	Metal	Gray	Poor	0.0	Non-LBP
Middle Room	-	2	Pipe	Metal	Gray	Fair	0.0	Non-LBP
Middle Room	-		Floor	Concrete	Gray	Poor	0.0	Non-LBP
Electrical Panel Room	-		Floor	Concrete	Gray	Poor	0.0	Non-LBP
Electrical Panel Room	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	1		Door	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	1		Door Jamb	Wood	Gray	Intact	0.0	Non-LBP
Electrical Panel Room	1		Wall	Sheetrock	White	Fair	0.0	Non-LBP
Electrical Panel Room	1		Wall	Sheetrock	White	Fair	0.0	Non-LBP
Electrical Panel Room	1		Column	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	2		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Electrical Panel Room	2		Wall	Cinderblock	White	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Electrical Panel Room	2		Column	Cinderblock	White	Intact	0.0	Non-LBP
Electrical Panel Room	2	1	Electric Box	Metal	Gray	Fair	0.0	Non-LBP
Electrical Panel Room	2	2	Electric Box	Metal	Gray	Fair	0.1	Non-LBP
Electrical Panel Room	2	3	Electric Box	Metal	Gray	Fair	0.1	Non-LBP
Electrical Panel Room	2	4	Electric Box	Metal	Gray	Fair	0.0	Non-LBP
Electrical Panel Room	2	5	Electric Box	Metal	Gray	Poor	0.0	Non-LBP
Electrical Panel Room	2	6	Electric Box	Metal	Gray	Poor	0.1	Non-LBP
Electrical Panel Room	2		Divider	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	2		Window Sill	Metal	White	Poor	0.1	Non-LBP
Electrical Panel Room	2		Window Sash	Metal	Gray	Poor	0.0	Non-LBP
Electrical Panel Room	2		Column	Metal	White	Intact	0.0	Non-LBP
Electrical Panel Room	2		Window Header	Metal	Gray	Poor	0.0	Non-LBP
Electrical Panel Room	-	2	Beam	Metal	Gray	Intact	0.0	Non-LBP
Electrical Panel Room	-	1	Beam	Metal	Gray	Intact	0.0	Non-LBP
Electrical Panel Room	-		Ceiling	Sheetrock	Gray	Fair	0.0	Non-LBP
Electrical Panel Room	-		Ceiling	Sheetrock	Gray	Fair	0.0	Non-LBP
Electrical Panel Room	-		Ceiling	Sheetrock	Gray	Fair	0.0	Non-LBP
Electrical Panel Room	3		Wall	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	3		Wall	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	3		Baseboard	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	4		Baseboard	Wood	White	Intact	0.0	Non-LBP
Electrical Panel Room	4		Wall	Wood	White	Poor	0.0	Non-LBP
Electrical Panel Room	4		Wall	Wood	White	Poor	0.0	Non-LBP
Electrical Panel Room	2	1	Electric Conduit	Metal	White	Poor	0.1	Non-LBP
Electrical Panel Room	2	2	Electric Conduit	Metal	White	Poor	0.0	Non-LBP
Electrical Panel Room	2	3	Electric Conduit	Metal	White	Poor	0.0	Non-LBP
Electrical Panel Room	2		Pipe	Metal	White	Intact	0.0	Non-LBP
Large Warehouse Area	1		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Large Warehouse Area	1		Wall	Brick	White	Intact	0.0	Non-LBP
Large Warehouse Area	1	2	Door Case	Metal	Dark Brown	Fair	0.1	Non-LBP
Large Warehouse Area	1		Column	Cinderblock	White	Intact	0.0	Non-LBP
Large Warehouse Area	1		Column	Metal	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	1		Window Sill	Metal	Gray	Poor	0.0	Non-LBP
Large Warehouse Area	1		Window Sash	Metal	Gray	Poor	0.0	Non-LBP
Large Warehouse Area	1		Window Header	Metal	Gray	Fair	0.0	Non-LBP
Large Warehouse Area	1		Pipe	Metal	White	Intact	0.0	Non-LBP
Large Warehouse Area	1	1	Door Case	Metal	White	Fair	0.0	Non-LBP
Large Warehouse Area	1		Fence	Metal	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	-	5	Beam	Metal	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	-	1	Beam	Metal	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	-	7	Beam	Metal	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	-		Ceiling	Sheetrock	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	-		Ceiling	Sheetrock	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	-		Ceiling	Sheetrock	Gray	Intact	0.0	Non-LBP
Large Warehouse Area	3		Door	Wood	White	Fair	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Large Warehouse Area	4		Door Case	Metal	Red	Fair	0.0	Non-LBP
Large Warehouse Area	-	1	Column	Metal	Gray	Fair	0.0	Non-LBP
Large Warehouse Area	-	2	Column	Metal	Gray	Fair	0.0	Non-LBP
Large Warehouse Area	-	3	Column	Metal	Gray	Fair	0.0	Non-LBP
Large Warehouse Area	-	4	Column	Metal	Gray	Fair	0.1	Non-LBP
Large Warehouse Area	-	5	Column	Metal	Gray	Fair	0.0	Non-LBP
Large Warehouse Area	2		Wall	Cement	Gray	Poor	0.0	Non-LBP
Large Warehouse Area	2		Wall	Cement	Gray	Poor	0.0	Non-LBP
Large Warehouse Area	2		Pipe	Metal	Gray	Poor	0.0	Non-LBP
Large Warehouse Area	-		Hatch Door	Metal	Gray	Poor	0.0	Non-LBP
Exterior	1	1	Door Case	Metal	Yellow	Intact	0.2	Non-LBP
Exterior	1	2	Door Case	Metal	Dark Brown	Fair	0.3	Non-LBP
Exterior	1	3	Door Case	Metal	Dark Brown	Intact	0.0	Non-LBP
Exterior	1	4	Door Case	Metal	Yellow	Fair	0.0	Non-LBP
Exterior	1	5	Door Case	Metal	Dark Brown	Fair	0.1	Non-LBP
Exterior	1		Wall	Cement	Pink	Poor	0.0	Non-LBP
Exterior	1		Panel	Metal	Red	Poor	0.0	Non-LBP

4.2 LEAD-BASED PAINT INSPECTION DATA – 11-29 IRVING AVENUE, QUEENS, NY – LOT 42

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Terra Nova - Exterior	1		Fence	Metal	Red	Intact	0.0	Non-LBP
Terra Nova - Exterior	1	2	Door Case	Metal	Dark Brown	Fair	0.0	Non-LBP
Terra Nova - Exterior	1		Wall	Brick	Gray	Intact	0.0	Non-LBP
Terra Nova - Exterior	1	1	Door Case	Metal	Gray	Intact	0.0	Non-LBP
Terra Nova-Bay	1		Wall	Brick	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2		Wall	Sheetrock	Gray	Intact	0.0	Non-LBP
Terra Nova-Bay	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2	1	Door	Wood	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2	1	Door Case	Wood	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2	4	Door Case	Wood	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2	4	Door	Wood	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2	1	Shelf	Wood	White	Intact	0.0	Non-LBP
Terra Nova-Bay	2	2	Shelf	Wood	Gray	Intact	0.0	Non-LBP
Terra Nova-Bay	2	3	Shelf	Wood	White	Intact	0.8	Non-LBP
Terra Nova-Bay	2	4	Shelf	Metal	White	Fair	0.0	Non-LBP
Terra Nova-Bay	2	5	Shelf	Metal	Purple	Fair	1.4	LBP
Terra Nova-Bay	2	6	Shelf	Wood	Gray	Intact	0.0	Non-LBP
Terra Nova-Bay	3		Door	Metal	White	Intact	0.0	Non-LBP
Terra Nova-Bay	3		Door Case	Metal	White	Intact	0.0	Non-LBP
Terra Nova-Bay	3		Wall	Cinderblock	White	Poor	0.0	Non-LBP
Terra Nova-Bay	3		Column	Brick	White	Poor	0.0	Non-LBP
Terra Nova-Bay	4		Wall	Cinderblock	White	Intact	0.1	Non-LBP
Terra Nova-Bay	4		Column	Brick	White	Intact	0.0	Non-LBP
Terra Nova-Bay	4		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Terra Nova-Bay	4	2	Window Sash	Metal	White	Fair	0.1	Non-LBP
Terra Nova-Bay	4	3	Window Sash	Metal	White	Fair	0.1	Non-LBP
Terra Nova-Bay	2		Baseboard	Wood	Gray	Intact	0.0	Non-LBP
Terra Nova-Office	1		Door	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	1		Baseboard	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	2		Baseboard	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	2		Door	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	2		Door Case	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	3		Baseboard	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	3		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	4		Wall	Sheetrock	White	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Terra Nova - Office	4		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Office	4		Baseboard	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	4		Door	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	4		Door Case	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	4	1	Window Jamb	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Office	4	2	Window Jamb	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Closet 1	3		Peg Board	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Closet 1	3		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Terra Nova - Closet 1	2		Peg Board	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Closet 2	3		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Terra Nova Bathroom	1		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova	2		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova	3		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova	4		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Terra Nova - Closet 3	-		Ceiling	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Closet 3	1		Wall	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Closet 3	3		Wall	Wood	White	Intact	0.0	Non-LBP
Terra Nova - Closet 3	2	2	Column	Metal	White	Intact	3.3	LBP
Primo Auto Body-Exterior	2		Wall	Brick	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Exterior	2	1	Door Case	Metal	Gray	Fair	0.6	Non-LBP
Primo Auto Body-Exterior	2	2	Door Case	Metal	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Exterior	2	2	Door	Metal	Gray	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	1		Wall	Brick	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	1		Beam	Metal	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	1		Column	Cement	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	1	2	Door Case	Wood	Gray	Poor	0.2	Non-LBP
Primo Auto Body-Bay 1	1	2	Door Case	Wood	White	Poor	0.3	Non-LBP
Primo Auto Body-Bay 1	2		Lower Wall	Cement	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2		Wall	Cement	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	2		Electric Box	Metal	Gray	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	2	1	Panel	Sheetrock	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	1	Panel	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	1	Column	Brick	Gray	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	2	1	Column	Metal	Gray	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	2	1	Column	Metal	White	Fair	0.1	Non-LBP
Primo Auto Body-Bay 1	2	2	Panel	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	2	Panel	Sheetrock	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	3	Panel	Sheetrock	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	3	Panel	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	4	Panel	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	4	Panel	Sheetrock	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	5	Panel	Sheetrock	Gray	Poor	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Primo Auto Body-Bay 1	2	5	Panel	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	6	Panel	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	2	Column	Brick	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	2	2	Column	Metal	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	2	Column	Metal	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	3	Column	Metal	Gray	Poor	0.1	Non-LBP
Primo Auto Body-Bay 1	2	3	Column	Brick	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	2	4	Column	Metal	Gray	Fair	0.1	Non-LBP
Primo Auto Body-Bay 1	2	4	Column	Metal	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	2	5	Column	Cement	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	2	5	Column	Cement	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	2		Upper Wall	Cement	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	3		Beam	Metal	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	3		Wall	Cinderblock	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Wall	Cinderblock	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Panel	Wood	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Door Case	Metal	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Lower Wall	Sheetrock	Gray	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Upper Wall	Sheetrock	White	Poor	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Upper Wall	Sheetrock	Green	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Molding	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	-		Column	Metal	Blue	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	2		Pipe	Metal	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	2		Beam	Metal	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 2	1	1	Door	Wood	Light Green	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	1	1	Door Case	Wood	Light Green	Intact	0.0	Non-LBP
Primo Auto Body-Bay 2	1		Wall	Sheetrock	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	1	2	Door Case	Metal	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 2	1		Pipe	Metal	Black	Intact	0.0	Non-LBP
Primo Auto Body-Bay 2	2		Wall	Cinderblock	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 2	2		Wall	Cinderblock	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	2	1	Column	Cinderblock	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	2	2	Column	Cinderblock	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	3		Door Case	Metal	Gray	Intact	0.0	Non-LBP
Primo Auto Body-Bay 2	4		Wall	Plaster	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	4		Wall	Plaster	White	Fair	0.0	Non-LBP
Primo Auto Body-Bay 2	4		Cabinet	Metal	White	Fair	0.0	Non-LBP
Primo Auto Body-Bathroom	1		Upper Wall	Sheetrock	Green	Fair	0.0	Non-LBP
Primo Auto Body-Bathroom	2		Upper Wall	Sheetrock	Green	Fair	0.0	Non-LBP
Primo Auto Body-Bathroom	3		Upper Wall	Sheetrock	Green	Fair	0.0	Non-LBP
Primo Auto Body-Bathroom	4		Upper Wall	Sheetrock	Green	Fair	0.0	Non-LBP
Primo Auto Body-Bathroom	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Primo Auto Body-Bathroom	1		Door	Wood	Light Green	Fair	0.0	Non-LBP
Primo Auto Body-Bathroom	1		Door Jamb	Wood	Light Green	Intact	0.0	Non-LBP
Primo Auto Body- Storage Space	1		Wall	Sheetrock	Peach	Fair	0.0	Non-LBP
Primo Auto Body- Storage Space	2		Wall	Sheetrock	Peach	Fair	0.0	Non-LBP
Primo Auto Body- Storage Space	3		Wall	Sheetrock	Peach	Fair	0.0	Non-LBP
Primo Auto Body- Storage Space	4		Wall	Sheetrock	Peach	Fair	0.0	Non-LBP
Primo Auto Body- Storage Space	3		Shelf	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Door	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Bay 1	4		Door Case	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Office	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Office	1		Door	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Office	1		Wall	Sheetrock	Green	Intact	0.0	Non-LBP
Primo Auto Body-Office	1		Wall	Sheetrock	Peach	Poor	0.0	Non-LBP
Primo Auto Body-Office	2		Wall	Sheetrock	Peach	Intact	0.0	Non-LBP
Primo Auto Body-Office	3		Wall	Sheetrock	Green	Intact	0.0	Non-LBP
Primo Auto Body-Office	4		Wall	Sheetrock	Peach	Intact	0.0	Non-LBP
Primo Auto Body-Office	3		Shelf	Sheetrock	Peach	Poor	0.0	Non-LBP
Primo Auto Body-Office	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Primo Auto Body-Office	1		Window Case	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Office	2		Window Case	Wood	White	Intact	0.0	Non-LBP
Primo Auto Body-Office	-		Pipe	Metal	White	Intact	0.0	Non-LBP

4.2 LEAD-BASED PAINT INSPECTION DATA – 11-27 IRVING AVENUE, QUEENS, NY – LOT 44

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Exterior	1		Panel	Metal	Gray	Poor	0.0	Non-LBP
Exterior	1	1	Door	Metal	Gray	Fair	0.0	Non-LBP
Exterior	1	1	Door Case	Metal	Gray	Fair	0.0	Non-LBP
Exterior	1	2	Door Case	Metal	Blue	Fair	0.0	Non-LBP
Exterior	1	2	Door Case	Metal	Yellow	Fair	0.0	Non-LBP
Exterior	1		Wall	Cement	Gray	Poor	0.0	Non-LBP
Exterior	1		Upper Wall	Brick	Gray	Intact	0.0	Non-LBP
Exterior	1	1	Fence	Metal	Blue	Poor	0.0	Non-LBP
Exterior	1	2	Fence	Metal	Blue	Poor	0.0	Non-LBP
Bay	1	2	Door	Metal	Blue	Intact	0.0	Non-LBP
Bay	2		Pipe	Metal	Black	Intact	0.0	Non-LBP
Bay	2		Shelf	Metal	Yellow	Poor	0.0	Non-LBP
Bay	3		Wall	Cinderblock	Gray	Intact	0.0	Non-LBP
Bay	-		Column	Metal	Blue	Intact	0.0	Non-LBP
Bay	-		Floor	Metal	Gray	Poor	0.0	Non-LBP
Hallway	1		Door	Metal	Gray	Intact	0.0	Non-LBP
Hallway	1		Door Case	Metal	Gray	Intact	0.0	Non-LBP
Hallway	4		Wall	Cinderblock	Black	Intact	0.0	Non-LBP

4.2 LEAD-BASED PAINT INSPECTION DATA – 11-25 IRVING AVENUE, QUEENS, NY – LOT 46

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Exterior	2		Wall	Brick	Purple	Poor	0.1	Non-LBP
Exterior	-		Lightpost	Metal	Purple	Poor	0.6	Non-LBP
Exterior	1		Fence	Metal	Black	Intact	0.0	Non-LBP
Exterior	1		Fence	Metal	Peach	Intact	0.0	Non-LBP
Exterior	1		Wall	Brick	Peach	Intact	0.1	Non-LBP
Exterior	1	1	Door Case	Metal	Peach	Intact	0.0	Non-LBP
Exterior	1	1	Door	Metal	Gray	Fair	0.0	Non-LBP
Exterior	1	2	Door	Wood	White	Intact	0.0	Non-LBP
Exterior	1	2	Door Case	Wood	White	Intact	0.0	Non-LBP
Exterior	1		Window Sash	Wood	White	Intact	0.0	Non-LBP
Exterior	1		Window Case	Metal	Black	Fair	0.0	Non-LBP
Office	1		Window Sash	Wood	White	Intact	0.0	Non-LBP
Office	1		Door	Wood	White	Intact	0.0	Non-LBP
Office	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Office	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Office	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	4		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	3		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	3		Door	Wood	White	Intact	0.0	Non-LBP
Office	3		Door Case	Wood	White	Intact	0.0	Non-LBP
Office	3		Baseboard	Wood	White	Intact	0.0	Non-LBP
Office	2		Baseboard	Wood	White	Intact	0.0	Non-LBP
Office	4		Baseboard	Wood	White	Intact	0.0	Non-LBP
Exterior	1	2	Door	Metal	Silver	Intact	0.0	Non-LBP
Exterior	1	3	Door	Metal	Silver	Intact	0.0	Non-LBP
Exterior	1	3	Door Case	Metal	Black	Poor	0.0	Non-LBP
Exterior	1	4	Door Case	Metal	Black	Poor	0.0	Non-LBP
Exterior	1		Wall	Brick	Gray	Intact	0.0	Non-LBP
Tire Storage	1	1	Door	Metal	Silver	Intact	0.0	Non-LBP
Tire Storage	1	2	Door	Metal	Silver	Intact	0.0	Non-LBP
Tire Storage	1		Beam	Metal	Gray	Intact	0.0	Non-LBP
Tire Storage	1		Upper Wall	Brick	Gray	Poor	0.0	Non-LBP
Tire Storage	3		Wall	Brick	White	Poor	0.4	Non-LBP
Tire Storage	3		Wall	Brick	Gray	Poor	2.8	Positive
Tire Storage	2		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	2		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	2		Door Case	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Door Jamb	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Bathroom	-		Ceiling	Sheetrock	White	Poor	0.0	Non-LBP
Bathroom	3		Wall	Brick	White	Fair	0.0	Non-LBP
Bathroom	4		Wall	Brick	White	Intact	0.0	Non-LBP
Tire Storage	1	1	Pipe	Metal	Black	Poor	0.0	Non-LBP
Tire Storage	1	2	Pipe	Metal	White	Poor	0.1	Non-LBP
Tire Storage	1		Panel	Metal	Silver	Intact	0.0	Non-LBP
Deli	1		Wall	Metal	Gray	Intact	0.0	Non-LBP
Deli	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Deli	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Deli	3		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Deli	3		Wall	Sheetrock	Blue	Intact	0.0	Non-LBP
Deli	4		Wall	Sheetrock	Blue	Intact	0.0	Non-LBP
Deli	-	1	Column	Sheetrock	Blue	Intact	0.0	Non-LBP
Deli	-	2	Column	Sheetrock	Blue	Intact	0.0	Non-LBP
Deli	3		Door	Wood	White	Intact	0.0	Non-LBP
Deli	3		Door Case	Wood	White	Intact	0.0	Non-LBP
Deli	4		Door Case	Wood	White	Intact	0.0	Non-LBP
Deli	4		Door	Wood	White	Intact	0.0	Non-LBP
Deli	4		Column	Wood	White	Intact	0.0	Non-LBP
Deli	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Deli	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	1		Divider	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	2		Wall	Wood	White	Intact	0.0	Non-LBP
Storage Space	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	3		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	4		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	1	1	Door Case	Wood	White	Intact	0.0	Non-LBP
Storage Space	1	2	Door Case	Wood	White	Intact	0.0	Non-LBP
Storage Space	1	2	Door	Wood	White	Intact	0.0	Non-LBP
Storage Space	2	1	Pipe	Metal	White	Fair	0.0	Non-LBP
Storage Space	2	2	Pipe	Metal	Black	Intact	0.0	Non-LBP
Storage Space	-	1	Beam	Wood	White	Intact	0.0	Non-LBP
Storage Space	-	2	Beam	Wood	White	Intact	0.0	Non-LBP
Storage Space	-	3	Beam	Wood	White	Intact	0.0	Non-LBP
Storage Space	-	4	Beam	Metal	White	Intact	0.1	Non-LBP
Storage Space	-	1	Column	Metal	White	Intact	0.0	Non-LBP
Storage Space	-	2	Column	Metal	White	Intact	0.0	Non-LBP
Storage Space	-	3	Column	Metal	White	Intact	0.0	Non-LBP
Storage Space	-	4	Column	Metal	White	Intact	0.0	Non-LBP
Storage Space	-	5	Column	Concrete	White	Intact	4.4	LBP
Storage Space	-	6	Column	Metal	White	Intact	0.0	Non-LBP
Storage Space	-	7	Column	Metal	White	Intact	3.9	LBP
Storage Space	2		Hatch Door	Wood	White	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Utility Room	2		Wall	Brick	White	Fair	0.0	Non-LBP
Utility Room	2		Wall	Brick	Black	Fair	0.0	Non-LBP
Utility Room	4		Wall	Brick	Silver	Intact	0.0	Non-LBP
Utility Room	4	1	Electric Box	Metal	Black	Fair	0.0	Non-LBP
Utility Room	4	2	Electric Box	Metal	Black	Fair	0.0	Non-LBP
Utility Room	4	3	Electric Box	Metal	Gray	Intact	0.0	Non-LBP
Utility Room	4	4	Electric Box	Metal	Gray	Intact	0.0	Non-LBP
Utility Room	4	5	Electric Box	Metal	Gray	Intact	0.0	Non-LBP
Utility Room	4	6	Electric Box	Metal	Gray	Intact	0.0	Non-LBP
Utility Room	4	2	Pipe	Metal	Black	Intact	0.0	Non-LBP
Utility Room	4	3	Pipe	Metal	Gray	Fair	0.0	Non-LBP
Utility Room	-	1	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	2	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	3	Column	Metal	Red	Poor	0.1	Non-LBP
Utility Room	-	4	Column	Metal	Orange	Poor	2.2	LBP
Utility Room	-	5	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	6	Column	Concrete	Black	Fair	0.0	Non-LBP
Utility Room	-	7	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	8	Column	Metal	Black	Intact	0.0	Non-LBP
Utility Room	-	9	Column	Metal	Orange	Poor	4.5	LBP
Utility Room	-	10	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	11	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	12	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	13	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	14	Column	Metal	Orange	Poor	1.7	LBP
Utility Room	-	15	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	-	16	Column	Metal	Orange	Poor	2.2	LBP
Utility Room	-	17	Column	Metal	Black	Poor	0.0	Non-LBP
Utility Room	4	1	Pipe	Metal	Gray	Poor	0.0	Non-LBP
Utility Room	3		Column	Metal	Black	Intact	0.0	Non-LBP
Utility Room	4		Door Case	Metal	Silver	Fair	3.0	LBP
Utility Room	4		handrail	Metal	Silver	Fair	0.1	Non-LBP
Utility Room	4		Door Jamb	Wood	Green	Poor	0.5	Non-LBP
Utility Room	4		Hatch Door	Metal	Silver	Intact	0.0	Non-LBP
Bathroom	1		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	2		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	3		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	4		Upper Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Exterior	1		Lower Wall	Cement	Beige	Intact	0.0	Non-LBP
Exterior	1		Door Case	Metal	Silver	Intact	0.0	Non-LBP
Exterior	1		handrail	Metal	Silver	Intact	0.0	Non-LBP
Exterior	2		Wall	Plaster	Gray	Fair	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Exterior	2		Hatch Door	Metal	Silver	Intact	0.0	Non-LBP
Exterior	2		Wall	Ceramic	Beige	unpainted	0.0	Non-LBP
Exterior	2		Pipe	Metal	Light Green	Poor	0.6	Non-LBP

In addition to the above testing via XRF analyzer, paint chip samples were collected from metal components which tested positive for lead-based paint and analyzed for confirmation of lead-based paint content. The results of the components identified to contain lead-based paint via XRF analyzer are listed below with the paint chip results listed next to the XRF result:

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	XRF Reading	Paint Chip Result	Classification
Terra Nova - Closet 3	2	2	Column	Metal	White	Intact	3.3	0.992 % by Weight	LBP
Terra Nova-Bay	2	5	Shelf	Metal	Purple	Fair	1.4	1.198 % by Weight	LBP

4.2 LEAD-BASED PAINT INSPECTION DATA - 15-14 COOPER AVENUE, QUEENS, NY – LOT 48

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Office	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	3		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	4		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Office	4		Door	Wood	White	Intact	0.0	Non-LBP
Office	4		Door Case	Wood	White	Intact	0.0	Non-LBP
Office	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Office	3		Door Case	Wood	White	Intact	0.0	Non-LBP
Office	3		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	2		Wall	Ceramic	White	Intact	0.0	Non-LBP
Bathroom	3		Wall	Ceramic	White	Intact	0.0	Non-LBP
Bathroom	4		Wall	Ceramic	White	Intact	0.0	Non-LBP
Bathroom	-		Floor	Ceramic	White	Intact	0.1	Non-LBP
Bathroom	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	3		Window Case	Metal	White	Fair	0.0	Non-LBP
Storage Space	1		Wall	Cinderblock	White	Intact	0.1	Non-LBP
Storage Space	2		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	3		Wall	Cinderblock	White	Intact	0.2	Non-LBP
Storage Space	4		Wall	Cinderblock	White	Intact	0.1	Non-LBP
Storage Space	4		Door Case	Metal	White	Intact	0.2	Non-LBP
Storage Space	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Storage Space	1		Door	Wood	White	Intact	0.0	Non-LBP
Storage Space	2		Door	Wood	White	Intact	0.0	Non-LBP
Storage Space	2		Door Case	Wood	White	Intact	0.0	Non-LBP
Storage Space	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Storage Space	-		Electric Conduit	Metal	White	Intact	0.0	Non-LBP
Storage Space	3		Panel	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Wall	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	2		Wall	Cinderblock	White	Poor	0.0	Non-LBP
Bathroom	3		Wall	Cinderblock	White	Poor	0.0	Non-LBP
Bathroom	4		Wall	Cinderblock	White	Poor	0.1	Non-LBP
Bathroom	-		Ceiling	Sheetrock	White	Intact	0.0	Non-LBP
Bathroom	1		Door	Wood	White	Intact	0.0	Non-LBP
Bathroom	1		Door Case	Wood	White	Intact	0.0	Non-LBP
Bathroom	2		Shelf Support	Metal	White	Intact	0.0	Non-LBP
Bathroom	2		Shelf	Wood	White	Intact	0.0	Non-LBP
Bathroom	2		Electric Conduit	Wood	White	Intact	0.0	Non-LBP
Bathroom	4		Electric Conduit	Wood	White	Fair	0.0	Non-LBP
Bay	1		Wall	Brick	White	Intact	0.0	Non-LBP

Room/ Location	Wall	Unit	Component	Substrate	Color	Condition	Reading	Classification
Bay	1		Wall	Brick	White	Intact	0.0	Non-LBP
Bay	2		Wall	Cinderblock	White	Intact	0.1	Non-LBP
Bay	2		Wall	Cinderblock	White	Intact	0.7	Non-LBP
Bay	3		Wall	Cinderblock	White	Poor	0.2	Non-LBP
Bay	3		Wall	Cinderblock	White	Poor	0.1	Non-LBP
Bay	4		Wall	Cinderblock	White	Intact	0.1	Non-LBP
Bay	4		Wall	Cinderblock	White	Intact	0.0	Non-LBP
Bay	2		Vent Cover	Metal	White	Fair	0.0	Non-LBP
Bay	2	1	Door Case	Metal	Red	Fair	0.0	Non-LBP
Bay	2		Window Case	Metal	Red	Intact	0.0	Non-LBP
Bay	2	1	Pipe	Metal	White	Intact	0.0	Non-LBP
Bay	2	2	Pipe	Metal	White	Intact	0.0	Non-LBP
Bay	2	3	Pipe	Metal	White	Intact	0.0	Non-LBP
Bay	2	4	Pipe	Metal	White	Intact	0.0	Non-LBP
Bay	2	5	Pipe	Metal	White	Intact	0.1	Non-LBP
Bay	2	6	Pipe	Metal	White	Intact	0.1	Non-LBP
Bay	3		Column	Brick	White	Intact	0.1	Non-LBP
Bay	2		Baseboard	Concrete	Gray	Fair	0.3	Non-LBP
Bay	-		Floor	Concrete	Red	Poor	0.0	Non-LBP
Bay	-		Floor	Concrete	Red	Poor	0.0	Non-LBP
Bay	-		Ceiling	Sheetrock	White	Fair	0.0	Non-LBP
Bay	-		Ceiling	Sheetrock	White	Fair	0.0	Non-LBP
Bay	-		Beam	Metal	White	Fair	0.0	Non-LBP
Bay	1		Beam	Metal	White	Poor	0.0	Non-LBP
Bay	1		Beam	Wood	White	Poor	0.0	Non-LBP
Bay	4		Pipe	Metal	White	Fair	0.0	Non-LBP
Exterior	2		Wall	Cinderblock	White	Poor	6.2	LBP
Exterior			Wall	Cinderblock	Purple	Intact	5.8	LBP
Exterior	1		Wall	Cinderblock	Purple	Intact	3.5	LBP
Exterior	1		Wall	Brick	Purple	Intact	0.0	Non-LBP
Exterior	1	1	Window Apron	Cement	Purple	Poor	0.5	Non-LBP
Exterior	1	2	Window Apron	Cement	Purple	Poor	0.2	Non-LBP
Exterior	1	1	Window Case	Metal	Brown	Intact	0.0	Non-LBP
Exterior	1	2	Window Case	Metal	Red	Intact	0.0	Non-LBP
Exterior	1	1	Door Case	Metal	Red	Poor	0.0	Non-LBP
Exterior	1	1	Door Case	Metal	Gray	Poor	0.0	Non-LBP
Exterior	1	2	Door Case	Metal	Gray	Fair	0.0	Non-LBP
Exterior	1	2	Door Case	Metal	Red	Fair	0.1	Non-LBP
Exterior	1	2	Door Case	Metal	Purple	Intact	0.0	Non-LBP
Exterior	1	3	Door Case	Metal	Yellow	Poor	0.0	Non-LBP
Exterior	1	4	Door Case	Metal	Yellow	Poor	0.0	Non-LBP
Exterior	1	3	Door Case	Metal	Gray	Fair	0.0	Non-LBP
Exterior	1	4	Door Case	Metal	Gray	Fair	0.0	Non-LBP
Exterior	1	4	Door	Metal	Gray	Fair	0.0	Non-LBP

4.3 HAZARDOUS MATERIALS SURVEY DATA – ALL BUILDINGS

LOCATION	ITEM OF ENVIRONMENTAL CONCERN	SIZE	QUANTITY	COMMENT
THROUGHOUT ALL BUILDINGS				
THROUGHOUT INTERIOR	FLUORESCENT LIGHT FIXTURE BALLASTS	N/A	N/A	Non-PCB – Limited Visual inspection of light fixture ballasts revealed that light ballasts are labeled as non-PCB containing by manufacturer.
11-33 IRVING AVENUE, QUEENS, NY – LOT 33				
THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	68	See Note 2
	ELECTRIC WALL THERMOSTATS	6 IN.	4	See Note 2
11-29 IRVING AVENUE, QUEENS, NY – LOT 42				
TERRANOVA - THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	40	See Note 2
PRIMO AUTO BODY - THROUGHOUT INTERIOR	FLOURESCENT LIGHT BALLASTS	N/A	40	See Notes 1
	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	40	See Note 2
11-27 IRVING AVENUE, QUEENS, NY – LOT 44				
THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	2 FT.	6	See Note 2
		4 FT.	10	See Note 2
11-25 IRVING AVENUE, QUEENS, NY – LOT 46				
THROUGHOUT – PRIMO FLAT FIX	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	2 FT.	6	See Note 2
		4 FT.	10	See Note 2
THROUGHOUT – DELI STORE		2 FT.	30	See Note 2
15-14 COOPER AVENUE, QUEENS, NY – LOT 48				
THROUGHOUT INTERIOR	SUSPECT MERCURY CONTAINING FLOURESCENT LIGHT BULBS	4 FT.	24	See Note 2

Notes:

1. Two (2) capacitors were presumed to be associated with each fluorescent light fixture.
2. Each fluorescent light bulb and thermostat was presumed to contain mercury.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Asbestos containing materials and Assumed-asbestos-containing materials, lead-based paint and assumed lead-based paint components and suspect hazardous materials have been identified during this survey.

In the event that any concealed ACM, LBP or other hazardous materials are identified and to be disturbed by the proposed renovation work, proper procedures shall be implemented prior to the commencement of such work. All asbestos and lead abatement work shall be performed in accordance with all applicable Federal, State and Local rules and regulations. The abatement project shall be filed with all agencies having jurisdiction over this project, such as USEPA, NYSDOL, and NYCDEP. All waste generated by the abatement of asbestos containing materials, lead-based paint containing materials and hazardous materials shall be disposed of in accordance with current applicable Federal, State and Local rules and regulations.

6.0 AREAS NOT ACCESSIBLE

Athenica Environmental Services, Inc. inspected and sampled materials, which were observable and accessible to the survey team. It is possible, however, that additional suspect ACM, LBP or hazardous materials may exist inside concealed spaces, which were not accessible without using destructive means.

Athenica Environmental Services, Inc. certifies that the information contained herein is based on the physical and visual inspections conducted by Athenica Environmental Services, Inc. and data collected during the inspection survey.

During our site visits, access to the 2nd floor areas including 2nd floor roof of 11-25 Irving Avenue, Queens, NY was not granted, therefore It was assumed that suspect asbestos containing materials and lead-based paint are present.

7.0 REPORT CERTIFICATIONS

Athenica Environmental Services, Inc. certifies that the information contained herein is based on the physical and visual inspections conducted by Athenica and data collected during the inspection survey.



Wojciech Sikorski
NYS DOL Asbestos Inspector/
NYC DEP Asbestos Investigator

Juraj Bardiovsky
Project Manager/ NYS DOL Asbestos
Inspector/ Project Designer

APPENDIX A

8.0 Analytical Results, Chain-of-Custody Forms and Certificates of Laboratory Analysis



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-25 Irving Ave
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #		STEREO MICROSCOPY RESULTS		SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
01 15-12-029-01	COLOR	Brown		Brick Mortar, Interior – Basement	0%	100%	NAD
	# LAYERS	1					
	SCAN						
02 15-12-029-02	COLOR	Brown		Brick Mortar, Interior – Basement	0%	100%	NAD
	# LAYERS	1					
	SCAN						
03 15-12-029-03	COLOR	Brown		Brick Mortar, Interior – Basement	0%	100%	NAD
	# LAYERS	1					
	SCAN						
04 15-12-029-04	COLOR	White		White Coating on Bricks, Interior – Basement	0%	100%	NAD
	# LAYERS	1					
	SCAN						
05 15-12-029-05	COLOR	White		White Coating on Bricks, Interior – Basement	0%	100%	NAD
	# LAYERS	1					
	SCAN						
06 15-12-029-06	COLOR	White/Brown		Wall Sheetrock, Interior – Basement	3%CELL	97%	NAD
	# LAYERS	2					
	SCAN						



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-25 Irving Ave
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS	SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
07 15-12-029-07	COLOR	Wall Sheetrock, Interior – 1 st Floor	30%CELL	70%	NAD
	# LAYERS				
	SCAN				
08 15-12-029-08	COLOR	Ceiling Sheetrock, Interior – 1 st Floor	10%CELL	90%	NAD
	# LAYERS				
	SCAN				
09 15-12-029-09	COLOR	Ceiling Sheetrock, Interior – Basement	15%CELL	85%	NAD
	# LAYERS				
	SCAN				
10 15-12-029-10	COLOR	Beam Plaster/Cement, Interior – Basement	0%	100%	NAD
	# LAYERS				
	SCAN				
11 15-12-029-11	COLOR	Beam Plaster/Cement, Interior – Basement	0%	100%	NAD
	# LAYERS				
	SCAN				
12 15-12-029-12	COLOR	Beam Plaster/Cement, Interior – Basement	0%	100%	NAD
	# LAYERS				
	SCAN				



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-25 Irving Ave
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS			SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR	Light Brown					
13 15-12-029-13	# LAYERS	1		Ceramic Floor Tile Grout, Interior – Ground Floor Front Deli	0%	100%	NAD
	SCAN						
14 15-12-029-14	COLOR	Light Brown		Ceramic Floor Tile Grout, Interior – Ground Floor Front Deli	0%	100%	NAD
	# LAYERS	1					
	SCAN						
15 15-12-029-15	COLOR	Gray		Ceramic Floor Tile Setting Cement, Interior – Ground Floor Front Deli	0%	100%	NAD
	# LAYERS	1					
	SCAN						
16 15-12-029-16	COLOR	Gray		Ceramic Floor Tile Setting Cement, Interior – Ground Floor Front Deli	0%	100%	NAD
	# LAYERS	1					
	SCAN						
17 15-12-029-17	COLOR	Brown		Ceramic Wall Tile Grout, Interior – Ground Floor Front Deli, Toilet	0%	100%	NAD
	# LAYERS	1					
	SCAN						
18 15-12-029-18	COLOR	Brown		Ceramic Wall Tile Grout, Interior – Ground Floor Front Deli, Toilet	0%	100%	NAD
	# LAYERS	1					
	SCAN						



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-25 Irving Ave
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS	SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
19 15-12-029-19	COLOR	Ceramic Wall Tile Setting Cement, Interior – Ground Floor Front Deli, Toilet	0%	100%	NAD
	# LAYERS				
	SCAN				
20 15-12-029-20	COLOR	Ceramic Wall Tile Setting Cement, Interior – Ground Floor Front Deli, Toilet	0%	100%	NAD
	# LAYERS				
	SCAN				
27 15-12-029-27	COLOR	Ceiling Sheetrock, Interior Flat Fix Shop	2%CELL	98%	NAD
	# LAYERS				
	SCAN				
28 15-12-029-28	COLOR	Ceiling Sheetrock, Interior Flat Fix Shop	5%CELL	95%	NAD
	# LAYERS				
	SCAN				
29 15-12-029-29	COLOR	Grey Stucco, Exterior	20%FBGL	80%	NAD
	# LAYERS				
	SCAN				
30 15-12-029-30	COLOR	Grey Stucco, Exterior	5%FBGL	95%	NAD
	# LAYERS				
	SCAN				



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LJC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LJC, NY 11104	PROJECT: 11-25 Irving Ave
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

Analyst: *E. Dimitrakas* for CG

Laboratory Director: *E. Dimitrakas*
E. Dimitrakas

- NAD: No Asbestos Detected, CELL: Cellulose, FBGL: Fiberglass, H: Hair, SY: Synthetics, CH: Chrysotile, AMOS: Amosite, TRE: Tremolite, ANTH: Anthophyllite, ACT: Actinolite, CRO: Crocidolite, VERM: Vermiculite.
- Analytical Methodologies: EPA 600/M4-82-020 (Point Count only) and ELAP Method 198.1.
- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- The liability of Laboratory Testing Services Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

NVLAP Lab Code 101958-0
ELAP 10955

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-25 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-029
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%All	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
21	15-12-029-21	Mastic Associated w/12x12 Floor Tiles, Behind Counter	57.63	15.25	27.12	NAD	NA	NAD	NA	Negat.
22	15-12-029-22	Mastic Associated w/12x12 Floor Tiles, Behind Counter	55.26	21.05	23.68	NAD	NA	NAD	NA	Negat.
23	15-12-029-23	12x12 Floor Tiles (Black), Behind Counter	15.48	80.65	3.87	NAD	NA	NAD	NA	Negat.
24	15-12-029-24	12x12 Floor Tiles (Black), Behind Counter	15.74	78.40	5.86	NAD	NA	NAD	NA	Negat.
25	15-12-029-25	12x12 Floor Tiles (Gray), Interior – Ground Floor Front Deli, Behind Counter	17.00	74.79	8.22	NAD	NA	NAD	NA	Negat.
26	15-12-029-26	12x12 Floor Tiles (Gray), Interior – Ground Floor Front Deli, Behind Counter	18.70	72.76	8.54	NAD	NA	NAD	NA	Negat.

E. Loukianova

ANALYST
E. Loukianova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-25 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-029
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AII	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
31	15-12-029-31	Caulking on Gate Silver, Exterior - Flat Fix Shop	61.99	28.77	9.25	NAD	NA	NAD	NA	Negat.
32	15-12-029-32	Caulking on Gate Silver, Exterior - Flat Fix Shop	65.29	28.93	5.79	NAD	NA	NAD	NA	Negat.
33	15-12-029-33	Caulking on Gate (Brown), Exterior - Flat Fix Shop	40.81	25.74	33.46	NAD	NA	NAD	NA	Negat.
34	15-12-029-34	Caulking on Gate (Brown), Exterior - Flat Fix Shop	44.26	23.22	32.51	NAD	NA	NAD	NA	Negat.
35	15-12-029-35	Tar/Paint on Gate, Exterior - Flat Fix Shop	62.60	6.11	28.45	2.85	Chrys.	NA	NA	Posit.
36	15-12-029-36	Tar/Paint on Gate, Exterior - Flat Fix Shop	67.46	4.37	28.17	SAMPLE NOT ANALYZED				

E. Loukianova

ANALYST
E. Loukianova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-25 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-029
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%All	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
37	15-12-029-37	Coating on Brick (Gray), Exterior - Flat Fix Shop	17.10	64.25	18.65	NAD	NA	NAD	NA	Negat.
38	15-12-029-38	Coating on Brick (Gray), Exterior - Flat Fix Shop	18.08	63.46	18.46	NAD	NA	NAD	NA	Negat.

Analyst Signature

ANALYST
E. Loukianova

Director Signature

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-25 IRVING AVE., QUEENS NY - LOT 46	DATE 10/24/2015	# OF SAMPLES
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS	

COMMENTS STOP AT FIRST POSITIVE	<input checked="" type="checkbox"/> PLM	<input checked="" type="checkbox"/> NOB-PLM	<input checked="" type="checkbox"/> NOB-TEM
	<input type="checkbox"/> 6 HRS	<input checked="" type="checkbox"/> 42 HRS	<input type="checkbox"/> 24 HRS


HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
1	1	BRICK MORTAR	INTERIOR - BASEMENT		(-)		
1	2	b			↓ NAD		
1	3						
2	4	WHITE COATING ON			(-)		
2	5	BRICKS			↓ NAD		
3	6	WALL SHEETROCK			(-)		
3	7	b	INTERIOR - 1ST FLOOR		↓ NAD		
4	8	CEILING SHEETROCK			(-)		
4	9	b	INTERIOR - BASEMENT		↓ NAD		
5	10	BRICK PLASTERMENT			(-)		
5	11	b			↓ NAD		
5	12	b			↓		

TRANSMITTAL OF RESULTS:
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE #:
FAX #:

BATCH #: 15 - 12-029

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY:	JURAJ BARDIOVSKY	DATE: 12/2/2015	TIME: 17:35
RECEIVED BY:	J. Ayikwa	DATE: 12/2/2015	TIME: 17:40
LABORATORY ACCREDITATION:			
NVLAP# 101958 ELAP# 10955			

 ATTENICA ENVIRONMENTAL SERVICES, INC.	ADDRESS	DATE
	WOLFF-ALPORT CHEMICAL CO SITE, 11-25 IRVING AVE., QUEENS NY - LOT 46	10/24/2015
INSPECTOR	CLIENT	PROJECT #
J. BARDIOVSKY / W. SIKORSKI	CDM SMITH	IFB-3323-054-004-CS
		# OF SAMPLES

COMMENTS **STOP AT FIRST POSITIVE**

☒ PLM
 ☒ NOB-PLM
 ☒ NOB-TEM
☐ 6 HRS
 ☒ 12 HRS
 ☐ 24 HRS

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
6	13	CERAMIC FLOOR	INTERIOR - GROUND FLOOR		(-) NAD		
6	14	TILE GROUT	FRONT DELI		↓		
7	15	CERAMIC FLOOR			(-) NAD		
7	16	TILE SETTING-CEMENT			↓		
8	17	CERAMIC WALL-TILE		TOILET	(-) NAD		
8	18	GROUT		↓			
9	19	CERAMIC WALL-TILE			(-) NAD		
9	20	SETTING-CEMENT			↓		
10	21	MASTIC ASSOCIATED WITH		BEHIND COUNTER	(-) NAD		
10	22	12X12 FLOOR TILES		↓			
11	23	12X12 FLOOR TILES			(-) NAD		
11	24	(BLACK)			↓		

TRANSMITTAL OF RESULTS:

☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE #: _____ FAX #: _____


BATCH #: **15 - 12-029**

CHAIN OF CUSTODY RECORD

RELINQUISHED BY:	JURAJ BARDIOVSKY	DATE:	12/1/2015	TIME:	17:35
RECEIVED BY:	J. SIKORSKI	DATE:	12/2/2015	TIME:	17:10

LABORATORY ACCREDITATION:

NVLAP# 101958 ELAP# 10955

 ATSENA ENVIRONMENTAL SERVICES, INC.	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-25 IRVING AVE., QUEENS NY - LOT 46		DATE 10/24/2015
	INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS

☒ **PLM**
☒ **NOB-PLM**
☒ **NOB-TEM**

☐ 6 HRS
 ☒ 12 HRS
 ☐ 24 HRS

STOP AT FIRST POSITIVE

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
12	25	12X12 FOUR TIES (GREY)	INTERIOR-GROUND FLOOR- FRONT DEL	BEHIND COUNTER		(-)NAD	(-)NAD
13	26	CEILING SHEETROCK	BACK OF DEH - INTERIOR		(-)NAD		
13	27		FLAT FIX SHOP		(-)NAD		
14	28	GREY STUCCO	EXTERIOR				
14	29						
15	30	CAULKING GATE	EXTERIOR - FLAT FIX SHOP		(-)NAD	(-)NAD	(-)NAD
15	31	SILVER					
16	32	CAULKING-ON GATE (BROWN)			(-)NAD	(-)NAD	(-)NAD
16	33						
17	34	TAP/PAINT ON GATE			(+)2.85%CH	NA	NA
17	35						
17	36						

TRANSMITTAL OF RESULTS:

- ☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE #:
 FAX #:
 BATCH #: **15 - 12-029**

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY: JURAJ BARDIOVSKY	DATE: 12/2 / 2015	TIME: 17:35	
RECEIVED BY: J. SIKORSKI	DATE: 12/2 / 2015	TIME: 17:40	
LABORATORY ACCREDITATION: NVLAP# 101958 ELAP# 10955			



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-25 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-090
DATES OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
39	15-12-090-01	Roof Membrane (Bottom Layer), Roof	70.52	3.29	24.39	1.81	Chrys.	NA	NA	Posit.
40	15-12-090-02	Roof Membrane (Bottom Layer), Roof	42.92	24.42	32.66	SAMPLE NOT ANALYZED				
41	15-12-090-03	Roof Membrane (Top Layer), Roof	41.30	16.14	39.79	2.77	Chrys.	NA	NA	Posit.
42	15-12-090-04	Roof Membrane (Top Layer), Roof	44.21	24.64	31.16	SAMPLE NOT ANALYZED				
43	15-12-090-05	Parapet Wall Tar/Flashing, Roof	69.96	6.29	16.43	7.31	Chrys.	NA	NA	Posit.
44	15-12-090-06	Parapet Wall Tar/Flashing, Roof	77.17	2.17	20.65	SAMPLE NOT ANALYZED				

E. Dimitrakas

for AS

ANALYST
A. Johnson

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-25 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-090
DATES OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
45	15-12-090-07	Tar on Beam, Roof	53.07	11.07	32.88	2.98	Chrys.	NA	NA	Posit.
46	15-12-090-08	Tar on Beam, Roof	53.67	5.42	40.91	SAMPLE NOT ANALYZED				

E. Dimitrakas

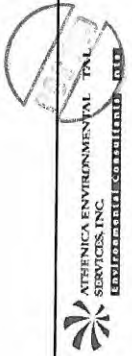
E. Dimitrakas

ANALYST
A. Johnson

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-25 IRVING AVE., QUEENS NY - LOT 46	DATE 12/4/2015	# OF SAMPLES 8
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS	

ANALYZE BY
TEM ONLY

COMMENTS STOP AT FIRST POSITIVE
--

<input type="checkbox"/> PLM	<input type="checkbox"/> NOB-PLM	<input checked="" type="checkbox"/> NOB-TEM
<input type="checkbox"/> 6 HRS	<input checked="" type="checkbox"/> 12 HRS	<input type="checkbox"/> 24 HRS

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
19	39	ROOF MEMBRANE	ROOF				(+) 1.81 / CH
19	40	(BOTTOM LAYER)					NA
20	41	ROOF MEMBRANE					(+) 2.77 / CH
20	42	(TOP LAYER)					NA
21	43	PARAPET WALL TAIL					(+) 7.31 / CH
21	44	FLASHING					NA
22	45	TARDON BEAM					(+) 2.98 / CH
22	46						NA
	47						
	48						
	49						
	50						

TRANSMITTAL OF RESULTS :
[] STANDARD
[] TELEPHONE RESULTS TO
[] FAX RESULTS TO

TELEPHONE # :
FAX # :

BATCH # : 15 - 12090

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/4/2015
RECEIVED BY :	A. Aquino	DATE :	12/4/2015
LABORATORY ACCREDITATION :			
NVLAP# 101958 ELAP# 10955			



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-27 Irving Ave., Queens
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/17/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS			SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR	# LAYERS	SCAN				
01 15-12-028-01	Gray	1		Brick Mortar, Interior	0%	100%	NAD
02 15-12-028-02	Gray	1		Brick Mortar, Interior	0%	100%	NAD
03 15-12-028-03	Gray	1		Brick Mortar, Interior	0%	100%	NAD
04 15-12-028-04	Gray	1		Cinderblock Mortar, Interior	0%	100%	NAD
05 15-12-028-05	Brown	1		Cinderblock Mortar, Interior	0%	100%	NAD
06 15-12-028-06	Gray	1		Cinderblock Mortar, Interior	0%	100%	NAD



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-27 Irving Ave., Queens
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/17/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS			SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR	# LAYERS	SCAN				
09 15-12-028-09	Gray			Wall Sheetrock, Interior	2%FBGL	98%	NAD
		1					
10 15-12-028-10	Gray/Brown			Wall Sheetrock, Interior	10%CELL 1%FBGL	89%	NAD
		2					
11 15-12-028-11	Brown			Floor Debris, Interior	2%CELL	98%	NAD
		1					
12 15-12-028-12	Gray/Brown			Floor Debris, Interior	20%CELL	80%	NAD
		2					
13 15-12-028-13	Gray			Floor Debris, Interior	5%CELL	95%	NAD
		1					



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104

Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-27 Irving Ave., Queens
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/17/15

Analyst: 
K. Esnard

Laboratory Director: 
E. Dimitrakas

- NAD: No Asbestos Detected, CELL: Cellulose, FBGL: Fiberglass, H: Hair, SY: Synthetics, CH: Chrysotile, AMOS: Amosite, TRE: Tremolite, ANTH: Anthophyllite, ACT: Actinolite, CRO: Crocidolite, VERM: Vermiculite.
- Analytical Methodologies: EPA 600/M4-82-020 (Point Count only) and ELAP Method 198.1.
- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- The liability of Laboratory Testing Services Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

NVLAP Lab Code 101958-0
ELAP 10955



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-27 Irving Ave. Project #: IFB-3323-054-004-CS
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-028
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/07/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
07	15-12-028-07	White Pain on Cinderblocks, Interior	12.71	60.81	26.48	NAD	NA	NAD	NA	Negat.
08	15-12-028-08	White Pain on Cinderblocks, Interior	13.19	59.71	27.11	NAD	NA	NAD	NA	Negat.
14	15-12-028-14	Joint Caulking on Metal Plate, Interior	50.29	45.43	4.29	NAD	NA	NAD	NA	Negat.
15	15-12-028-15	Joint Caulking on Metal Plate, Interior	50.13	46.25	3.62	NAD	NA	NAD	NA	Negat.

E. Loukianova


ANALYST
E. Loukianova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

 ATHENICA ENVIRONMENTAL SERVICES, INC. 10000000000000000000	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-27 IRVING AVE., QUEENS NY - LOT 44	DATE 10/24/2015
	INSPECTOR J. BARDIOVSKY/W. SIKORSKI	CLIENT CDM SMITH
		# OF SAMPLES 15



☒ PLM ☒ NOB-PLM ☒ NOB-TEM
☐ 6 HRS ☐ 12 HRS ☐ 24 HRS

COMMENTS **STOP AT FIRST POSITIVE**

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS	
					PLM	TEM-NOB
1	1	BRICK MORTAR	INTERIOR		(-)NAD	
1	2	b			↓	
1	3					
2	4	UNDERBLOCK MORTAR			(-)NAD	
2	5	b			↓	
2	6					
3	7	WHITE PAINT ON				
3	8	CINDERBLOCKS			(-)NAD	
4	9	WALL SHEETROCK			↓	
4	10	b			(-)NAD	
5	11	FLOOR DEBRIS			↓	
5	12	b			(-)NAD	

TRANSMITTAL OF RESULTS :
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
 FAX # :

BATCH # : 15 - 12 - 028

CHAIN OF CUSTODY RECORD

RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/12/2015	TIME :	17:00
RECEIVED BY :	J. A. YIKARI	DATE :	12/12/2015	TIME :	17:00
LABORATORY ACCREDITATION :					
NVLAP# 101958 ELAP# 10955					



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-27 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	Project #: IFB-3323-054-004-CS
DATES OF ANALYSIS: 12/09/15	LABORATORY ID #: 15-12-123
	DATE OF REPORT: 12/10/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%All	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
17	15-12-123-01	Roof Membrane (Bottom Layer), Roof	57.29	6.02	33.57	3.12	Chrys.	NA	NA	Posit.
18	15-12-123-02	Roof Membrane (Bottom Layer), Roof	85.66	0.98	13.35	SAMPLE NOT ANALYZED				
19	15-12-123-03	Roof Membrane (Top Layer), Roof	64.53	8.92	26.55	NAD	NA	NAD	NA	Negat.
20	15-12-123-04	Roof Membrane (Top Layer), Roof	52.43	14.39	33.18	NAD	NA	NAD	NA	Negat.
21	15-12-123-05	Parapet Wall Flashing/Tar, Roof	79.68	2.54	15.04	2.74	Chrys.	NA	NA	Posit.
22	15-12-123-06	Parapet Wall Flashing/Tar, Roof	79.47	5.75	14.78	SAMPLE NOT ANALYZED				

ANALYST
A. Korionova

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-27 Irving Ave. Project #: IFB-3323-054-004-CS
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-123
DATES OF ANALYSIS: 12/09/15	DATE OF REPORT: 12/10/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
23	15-12-123-07	Tar on Metal Beams, Roof	98.66	0.50	0.84	NAD	NA	NAD	NA	Negat.
24	15-12-123-08	Tar on Metal Beams, Roof	97.89	1.32	0.79	NAD	NA	NAD	NA	Negat.
25	15-12-123-09	Vent Stack Tar/Flashing, Roof	82.16	2.97	12.39	2.48	Chrys.	NA	NA	Posit.
26	15-12-123-10	Vent Stack Tar/Flashing, Roof	77.30	2.14	20.55	SAMPLE NOT ANALYZED				


nee
ANALYST
A. Korionova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

 ATHENICA ENVIRONMENTAL SERVICES, INC. <small>AN ISO 9001:2008 CERTIFIED FIRM</small>	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-27 IRVING AVE., QUEENS NY - LOT 44	DATE 12/4/2015
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS
INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	# OF SAMPLES 10	

COMMENTS **STOP AT FIRST POSITIVE**

☐ PLM ☐ NOB-PLM ☒ NOB-TEM
☐ 6 HRS ☐ 12 HRS ☐ 24 HRS

ANALYZE BY
TEM ONLY

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
71	17	ROOF MEMBRANE	Roof				(+) 3.12 %CH
72	18	(BOTTOM LAYER)					NA
83	19	ROOF MEMBRANE					(-) NA
84	20	(TOP LAYER)					↓
95	21	PARAPET WALL					(+) 2.74 %CH
96	22	FLASHING/TAR					NA
107	23	TAR ON METAL					(-) NA
108	24	BEAMS					↓
119	25	VENT STACK TAR					(+) 2.48 %CH
110	26	FLASHING					NA

TRANSMITTAL OF RESULTS :
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
 FAX # :

BATCH # : 15 - 12-123

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE : 12/8/2015	TIME : 13:00
RECEIVED BY :	<i>[Signature]</i>	DATE : 12/8/2015	TIME : 13:10
LABORATORY ACCREDITATION : <i>analyzed by A. Kozionova</i> 12-9-15			
NVLAP# 101958 ELAP# 10955			



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-29 Irving Ave
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS	SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
01 15-12-030-01	COLOR	Brick Mortar, Interior	0%	100%	NAD
	# LAYERS				
	SCAN				
02 15-12-030-02	COLOR	Brick Mortar, Interior	0%	100%	NAD
	# LAYERS				
	SCAN				
03 15-12-030-03	COLOR	Brick Mortar, Interior	0%	100%	NAD
	# LAYERS				
	SCAN				
04 15-12-030-04	COLOR	Cinderblock Mortar, Interior	0%	100%	NAD
	# LAYERS				
	SCAN				
05 15-12-030-05	COLOR	Cinderblock Mortar, Interior	0%	100%	NAD
	# LAYERS				
	SCAN				
06 15-12-030-06	COLOR	Cinderblock Mortar, Interior	0%	100%	NAD
	# LAYERS				
	SCAN				



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-29 Irving Ave
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS	SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
07 15-12-030-07	COLOR	Cream/Brown	5%CELL 1%FBGL	94%	NAD
	# LAYERS				
	SCAN				
08 15-12-030-08	COLOR	Cream/Brown	2%CELL	98%	NAD
	# LAYERS				
	SCAN				
09 15-12-030-09	COLOR	Light Brown	0%	100%	NAD
	# LAYERS				
	SCAN				
10 15-12-030-10	COLOR	Light Brown	0%	100%	NAD
	# LAYERS				
	SCAN				
11 15-12-030-11	COLOR	Light Brown	0%	100%	NAD
	# LAYERS				
	SCAN				
12 15-12-030-12	COLOR	Light Brown	0%	100%	NAD
	# LAYERS				
	SCAN				



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-29 Irving Ave
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS		SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR	Light Brown				
13 15-12-030-13	# LAYERS	1	Wall Plaster (Scratch Coat), Interior	0%	100%	NAD
	SCAN					
18 15-12-030-18	COLOR	Dark Brown	Door Insulation, Interior, Front Door	90%CELL	10%	NAD
	# LAYERS	1				
	SCAN					
19 15-12-030-19	COLOR	Brown	Door Insulation, Interior, Back Door	95%CELL	5%	NAD
	# LAYERS	1				
	SCAN					

Analyst: K. Gibson
K. Gibson

Laboratory Director: E. Dimitrakas
E. Dimitrakas

- NAD: No Asbestos Detected, CELL: Cellulose, FBGL: Fiberglass, H: Hair, SY: Synthetics, CH: Chrysotile, AMOS: Amosite, TRE: Tremolite, ANTH: Anthophyllite, ACT: Actinolite, CRO: Crocidolite, VERM: Vermiculite.
- Analytical Methodologies: EPA 600/M4-82-020 (Point Count only) and ELAP Method 198.1.
- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- The liability of Laboratory Testing Services Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

NVLAP Lab Code 101958-0
ELAP 10955

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-29 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-030
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
14	15-12-030-14	Window Putty Interior, Interior	6.77	84.52	8.71	NAD	NA	NAD	NA	Negat.
15	15-12-030-15	Window Putty Interior, Interior	6.95	72.84	20.21	NAD	NA	NAD	NA	Negat.
16	15-12-030-16	12x12 Floor Tiles/Glue, Interior	15.14	69.09	15.77	NAD	NA	NAD	NA	Negat.
17	15-12-030-17	12x12 Floor Tiles/Glue, Interior	15.01	73.48	11.51	NAD	NA	NAD	NA	Negat.
20	15-12-030-20	Joint Caulking on Floor Plate, Interior	60.15	36.19	3.67	NAD	NA	NAD	NA	Negat.
21	15-12-030-21	Joint Caulking on Floor Plate, Interior	60.55	35.68	3.77	NAD	NA	NAD	NA	Negat.


ANALYST
E. Loukianova


LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



ADDRESS

WOLFF-ALPORT CHEMICAL CO SITE,
11-29 IRVING AVE., QUEENS NY - LOT 42

DATE

10/24/2015

INSPECTOR

J. BARDIOVSKY/ W. SIKORSKI

CLIENT

CDM SMITH

PROJECT #

IFB-3323-054-004-CS

OF SAMPLES

21

COMMENTS **STOP AT FIRST POSITIVE**

☒ PLM ☒ NOB-PLM ☒ NOB-TEM
☐ 6 HRS ☒ 12 HRS ☐ 24 HRS

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
1	1	BRICK MORTAR	INTERIOR		(-)		
1	2						
1	3						
2	4	CINDERBLOCK MORTAR			(-)		
2	5						
2	6						
3	7	CEILING SHEETROCK			(-)		
3	8						
4	9	WALL PLASTER (CRACKS)			(-)		
4	10						
4	11						
4	12						

TRANSMITTAL OF RESULTS:


- ☐ STANDARD
- ☐ TELEPHONE RESULTS TO
- ☐ FAX RESULTS TO

TELEPHONE #:
FAX #:

BATCH #: 15 - 12-030

CHAIN OF CUSTODY RECORD

RELINQUISHED BY:	JURAJ BARDIOVSKY	DATE:	12/2/2015	TIME:	16:45
RECEIVED BY:	J. Sikorski	DATE:	12/2/2015	TIME:	17:40
LABORATORY ACCREDITATION:					
NVLAP# 101958 ELAP# 10955					

 ATHENICA ENVIRONMENTAL SERVICES, INC.	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-29 IRVING AVE., QUEENS NY - LOT 42	DATE 10/24/2015	# OF SAMPLES 21
	INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	CLIENT CDM SMITH	

COMMENTS **STOP AT FIRST POSITIVE**

☒ PLM ☒ NOB-PLM ☒ NOB-TEM
☐ 6 HRS ☒ 12 HRS ☐ 24 HRS

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
4	13	WALL PASTER (SPRACH COAT)	INTERIOR	EAST WALL	(-)NAD	(-)NAD	(-)NAD
5	14	WINDOW PUTTY					
5	15	INTERIOR					
6	16	12x12 FLOOR TILES				(-)NAD	(-)NAD
6	17	GLUE					
7	18	DOOR INSULATION		FRONT DOOR	(-)		
7	19			BALCON DOOR	↓ NAD		
8	20	JOINT CAULKING ON				(-)NAD	(-)NAD
8	21	FLOOR PLATE					

TRANSMITTAL OF RESULTS :
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
 FAX # :

BATCH # : 15 -

CHAIN OF CUSTODY RECORD

RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/12 / 2015	TIME :	16:45
RECEIVED BY :	W. Sikorski	DATE :	12/12 / 2015	TIME :	17:40

LABORATORY ACCREDITATION :
 NVLAP# 101958 ELAP# 10955



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-29 Irving Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-124
DATES OF ANALYSIS: 12/09/15	DATE OF REPORT: 12/10/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
22	15-12-124-01	Roof Membrane (Bottom Layer), Roof	67.45	6.45	22.23	3.86	Chrys.	NA	NA	Posit.
23	15-12-124-02	Roof Membrane (Bottom Layer), Roof	55.55	3.61	40.84	SAMPLE NOT ANALYZED				
24	15-12-124-03	Roof Membrane (Top Layer), Roof	54.98	12.52	29.25	NAD	NA	3.25	Chrys.	Posit.
25	15-12-124-04	Roof Membrane (Top Layer), Roof	64.63	1.91	33.46	NAD	NA	SAMPLE NOT ANALYZED		
26	15-12-124-05	Roof Flashing (Bottom Layer), Roof	70.31	9.00	17.50	3.19	Chrys.	NA	NA	Posit.
27	15-12-124-06	Roof Flashing (Bottom Layer), Roof	71.83	6.34	21.83	SAMPLE NOT ANALYZED				

E. Loukianova

ANALYST
E. Loukianova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-29 Irving Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-124
DATES OF ANALYSIS: 12/09/15	DATE OF REPORT: 12/10/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
28	15-12-124-07	Roof Flashing (Top Layer), Roof	62.18	4.71	28.85	4.27	Chrys.	NA	NA	Posit.
29	15-12-124-08	Roof Flashing (Top Layer), Roof	51.04	1.32	47.64	SAMPLE NOT ANALYZED				
30	15-12-124-09	Coping Stone Tar, Roof	75.54	2.15	19.23	3.08	Chrys.	NA	NA	Posit.
31	15-12-124-10	Coping Stone Tar, Roof	73.61	0.95	25.44	SAMPLE NOT ANALYZED				
32	15-12-124-11	Parapet Wall Tar/Flashing, Roof	73.78	1.13	20.72	4.37	Chrys.	NA	NA	Posit.
33	15-12-124-12	Parapet Wall Tar/Flashing, Roof	47.16	6.29	46.56	SAMPLE NOT ANALYZED				

ANALYST
E. Loukianova

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-29 Irving Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-124
DATES OF ANALYSIS: 12/09/15	DATE OF REPORT: 12/10/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%All	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
34	15-12-124-13	Vent Stack Flashing, Roof	79.05	0.81	16.92	3.22	Chrys.	NA	NA	Posit.
35	15-12-124-14	Vent Stack Flashing, Roof	80.87	1.78	17.35	SAMPLE NOT ANALYZED				
36	15-12-124-15	Car Parts/Car Body Lining, Roof	37.03	29.71	33.26	NAD	NA	Trace	Chrys.	Negat.
37	15-12-124-16	Car Parts/Car Body Lining, Roof	21.53	4.12	74.34	NAD	NA	NAD	NA	Negat.

E. Loukianova

ANALYST
E. Loukianova


E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



 ATSENICA ENVIRONMENTAL SERVICES, INC. 11111111111111111111	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-29 IRVING AVE., QUEENS NY - LOT 42	DATE 12/4/2015
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS
INSPECTOR J. BARDIOVSKY/ W. SIKORSKI		# OF SAMPLES

COMMENTS STOP AT FIRST POSITIVE

<input checked="" type="checkbox"/> PLM	<input type="checkbox"/> NOB-PLM	<input checked="" type="checkbox"/> NOB-TEM
<input type="checkbox"/> 6 HRS	<input checked="" type="checkbox"/> 12 HRS	<input type="checkbox"/> 24 HRS

60 STRAIGHT
TO TEM


HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
9	22	ROOF MEMBRANE	ROOF				(+) 3.86% CH
9	23	(Bottom layer)					NA
10	24	ROOF MEMBRANE					(+) 3.25% CH
10	25	(TOP layer)					NA
11	26	ROOF FLASHING					(+) 3.19% CH
11	27	(Bottom layer)					NA
12	28	Roof FLASHING					(+) 4.22% CH
12	29	(TOP layer)					NA
13	30	ROOF FLASHING					(+) 3.08% CH
13	31						NA
14	32	PARAPET WALL TOP					(+) 4.32% CH
14	33	FLASHING					NA

TRANSMITTAL OF RESULTS :

- ☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
FAX # :

BATCH # : 15 -12-124

RELINQUISHED BY : JURAJ BARDIOVSKY	DATE : 12/8/2015	TIME : 18:20
RECEIVED BY : 	DATE : 12/8/2015	TIME : 13:30
LABORATORY ACCREDITATION : NVLAP# 101958 ELAP# 10955		



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104		PROJECT: 11-33 Irving Ave
DATE OF ANALYSIS: 12/03/15		DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS			SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR		Gray				
01 15-12-025-01	# LAYERS		1	Brick Mortar, Interior/Exterior	0%	100%	NAD
	SCAN						
02 15-12-025-02	COLOR		Gray/Red	Brick Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS		2				
	SCAN						
03 15-12-025-03	COLOR		Gray	Brick Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS		1				
	SCAN						
04 15-12-025-04	COLOR		Gray	CMU Mortar, Interior	0%	100%	NAD
	# LAYERS		1				
	SCAN						
05 15-12-025-05	COLOR		Gray	CMU Mortar, Interior	0%	100%	NAD
	# LAYERS		1				
	SCAN						
06 15-12-025-06	COLOR		Gray	CMU Mortar, Interior	0%	100%	NAD
	# LAYERS		1				
	SCAN						



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-33 Irving Ave
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS	SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
07 15-12-025-07	COLOR	Gypsum Wall Board, Interior	5%CELL	95%	NAD
	# LAYERS				
	SCAN				
08 15-12-025-08	COLOR	Gypsum Wall Board, Interior	5%CELL	95%	NAD
	# LAYERS				
	SCAN				
09 15-12-025-09	COLOR	Gypsum Ceiling Board, Interior	3%CELL	97%	NAD
	# LAYERS				
	SCAN				
10 15-12-025-10	COLOR	Gypsum Ceiling Board, Interior	10%CELL	90%	NAD
	# LAYERS				
	SCAN				
19 15-12-025-19	COLOR	Brown Paper Door Insulation, Interior	100%CELL	0%	NAD
	# LAYERS				
	SCAN				
20 15-12-025-20	COLOR	Brown Paper Door Insulation, Interior	100%CELL	0%	NAD
	# LAYERS				
	SCAN				



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-33 Irving Ave
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS		SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR # LAYERS	Beige 1 POINT				
21 15-12-025-21	COLOR # LAYERS	Beige 1 POINT	Panel Board Backing Paper, Interior, Abandoned Panel	70%CELL 10%SY	14%	6%CH
22 15-12-025-22	COLOR # LAYERS		Panel Board Backing Paper, Interior, Abandoned Panel			NA
25 15-12-025-25	COLOR # LAYERS SCAN	Gray 1	Stucco, Exterior	0%	100%	NAD
26 15-12-025-26	COLOR # LAYERS SCAN	Gray 1	Stucco, Exterior	0%	100%	NAD
35 15-12-025-35	COLOR # LAYERS SCAN	Gray/White 2	Concrete/Cement Board at Ceiling, Interior	0%	100%	NAD
36 15-12-025-36	COLOR # LAYERS SCAN	Gray/White 2	Concrete/Cement Board at Ceiling, Interior	0%	100%	NAD



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 11-33 Irving Ave
DATE OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS	SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
39 15-12-025-39	COLOR	Roof Insulation, Roof	3%CELL	97%	NAD
	# LAYERS				
	SCAN				
40 15-12-025-40	COLOR	Roof Insulation, Roof	3%CELL	97%	NAD
	# LAYERS				
	SCAN				

Analyst:

C. Gooding

Laboratory Director:

E. Dimitrakas

- NAD: No Asbestos Detected, CELL: Cellulose, FBGL: Fiberglass, H: Hair, SY: Synthetics, CH: Chrysotile, AMOS: Amosite, TRE: Tremolite, ANTH: Anthophyllite, ACT: Actinolite, CRO: Crocidolite, VERM: Vermiculite.
- Analytical Methodologies: EPA 600/M4-82-020 (Point Count only) and ELAP Method 198.1.
- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- The liability of Laboratory Testing Services Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

NVLAP Lab Code 101958-0
ELAP 10955



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104		PROJECT: 11-33 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4		LABORATORY ID #: 15-12-025
DATES OF ANALYSIS: 12/03/15		DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
11	15-12-025-11	Black Paper on Sheetrock Ceiling, Interior	39.22	8.33	52.45	NAD	NA	NAD	NA	Negat.
12	15-12-025-12	Black Paper on Sheetrock Ceiling, Interior	37.43	6.59	55.99	NAD	NA	NAD	NA	Negat.
13	15-12-025-13	Internal Window Putty, Interior	8.12	75.97	15.91	NAD	NA	NAD	NA	Negat.
14	15-12-025-14	Internal Window Putty, Interior	7.45	79.30	13.25	NAD	NA	NAD	NA	Negat.
15	15-12-025-15	Tar on Cinderblock Wall, Interior	55.89	20.53	20.72	2.85	Chrys.	NA	NA	Posit.
16	15-12-025-16	Tar on Cinderblock Wall, Interior	52.26	21.81	25.93	SAMPLE NOT ANALYZED				

E. Loukianova

ANALYST
E. Loukianova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-33 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-025
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AII	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
17	15-12-025-17	White Paint on Cinderblock Walls, Interior	37.50	30.47	32.03	NAD	NA	Trace	Chrys.	Negat.
18	15-12-025-18	White Paint on Cinderblock Walls, Interior	47.06	22.35	30.59	NAD	NA	Trace	Chrys.	Negat.
23	15-12-025-23	Black Panel Components (Bakelite), Interior	70.98	6.64	22.38	NAD	NA	NAD	NA	Negat.
24	15-12-025-24	Black Panel Components (Bakelite), Interior	71.18	7.29	21.53	NAD	NA	NAD	NA	Negat.
27	15-12-025-27	Pink Paint on Stucco, Exterior	50.00	11.43	38.57	NAD	NA	NAD	NA	Negat.
28	15-12-025-28	Pink Paint on Stucco, Exterior	49.14	1.72	49.14	NAD	NA	NAD	NA	Negat.

[Signature]

ANALYST
E. Loukianova

[Signature]

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-33 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-025
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
29	15-12-025-29	Exp. Joint Sidewalk Caulking, Exterior	68.75	27.08	4.17	NAD	NA	NAD	NA	Negat.
30	15-12-025-30	Exp. Joint Sidewalk Caulking, Exterior	69.41	26.65	3.94	NAD	NA	NAD	NA	Negat.
31	15-12-025-31	Asphalt at Exterior Base of Building, Exterior	8.69	10.51	80.81	NAD	NA	Trace	Chrys.	Negat.
32	15-12-025-32	Asphalt at Exterior Base of Building, Exterior	5.89	13.86	80.25	NAD	NA	Trace	Chrys.	Negat.
33	15-12-025-33	Textured Gray Paint on Metal Beams, Interior	34.33	6.44	59.23	NAD	NA	NAD	NA	Negat.
34	15-12-025-34	Textured Gray Paint on Metal Beams, Interior	41.00	5.00	54.00	NAD	NA	NAD	NA	Negat.

E. Loukianova

ANALYST
E. Loukianova

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-33 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-025
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
37	15-12-025-37	Tar on Edge Trim, Roof	73.85	19.27	6.19	0.69	Chrys.	SAMPLE NOT ANALYZED	SAMPLE NOT ANALYZED	
38	15-12-025-38	Tar on Edge Trim, Roof	70.13	15.91	12.37	1.59	Chrys.	NA	NA	Posit.
41	15-12-025-41	Roof Membrane, Roof	64.92	6.30	21.20	7.58	Chrys.	NA	NA	Posit.
42	15-12-025-42	Roof Membrane, Roof	61.64	5.64	32.73			SAMPLE NOT ANALYZED		
43	15-12-025-43	Roof Flashing, Roof	53.61	10.54	35.12	0.72	Chrys.	SAMPLE NOT ANALYZED	SAMPLE NOT ANALYZED	
44	15-12-025-44	Roof Flashing, Roof	51.71	7.52	38.57	2.20	Chrys.	NA	NA	Posit.

A. Aquino

ANALYST
A. Aquino

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-33 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-025
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT./ NEGAT.
45	15-12-025-45	Pitch Pocket Tar, Roof	69.03	15.75	12.97	2.25	Chrys.	NA	NA	Posit.
46	15-12-025-46	Pitch Pocket Tar, Roof	70.87	18.48	10.65	SAMPLE NOT ANALYZED				
47	15-12-025-47	Flashing on Roof Fans, Roof	61.95	5.31	21.84	10.90	Chrys.	NA	NA	Posit.
48	15-12-025-48	Flashing on Roof Fans, Roof	85.32	1.45	13.23	SAMPLE NOT ANALYZED				
49	15-12-025-49	Drain Flashing, Roof	64.10	13.68	19.60	2.62	Chrys.	NA	NA	Posit.
50	15-12-025-50	Drain Flashing, Roof	82.61	1.00	16.39	SAMPLE NOT ANALYZED				

A. Aquino
ANALYST
A. Aquino

E. Dimitrakas
LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 11-33 Irving Ave.
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-025
DATES OF ANALYSIS: 12/03/15	DATE OF REPORT: 12/04/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
51	15-12-025-51	Gooseneck Flashing, Roof	82.13	2.13	9.44	6.29	Chrys.	NA	NA	Posit.
52	15-12-025-52	Gooseneck Flashing, Roof	81.17	0.62	18.21	SAMPLE NOT ANALYZED				

A. Aquino

ANALYST
A. Aquino

E. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



INSPECTOR J. BARDIOVSKY/ W. SIKORSKI		ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-33 IRVING AVE., QUEENS NY - LOT 33	DATE 10/20/2015
CLIENT CDM SMITH		PROJECT # IFB-3323-054-004-CS	# OF SAMPLES 4852

COMMENTS STOP AT FIRST POSITIVE	<input checked="" type="checkbox"/> PLM	<input checked="" type="checkbox"/> NOB-PLM	<input checked="" type="checkbox"/> NOB-TEM
	<input type="checkbox"/> 6 HRS	<input checked="" type="checkbox"/> 12 HRS	<input type="checkbox"/> 24 HRS

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
1	1	BRICK MORTAR	INTERIOR EXTERIOR		(-)NAD		
1	2						
1	3						
2	4	CMU MORTAR	INTERIOR		(-)NAD		
2	5						
2	6						
3	7	GYP SUM WALL BOARD			(-)NAD		
3	8						
4	9	GYP SUM CEILING			(-)NAD		
4	10	BOARD					
5	11	PAPER BLACK PAPER			(-)NAD		
5	12	ON SHEET ROCK CEILING			(-)NAD		


TRANSMITTAL OF RESULTS :

- ☐ STANDARD
- ☐ TELEPHONE RESULTS TO
- ☐ FAX RESULTS TO

TELEPHONE # :
FAX # :

BATCH # : **15 - 12 - 025**

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/2 / 2015
RECEIVED BY :	J. A. SIKORSKI	DATE :	12/2 / 2015
LABORATORY ACCREDITATION :			
NVLAP# 101958	ELAP# 10955	TIME :	16:30
		TIME :	16:30

 ATHENICA ENVIRONMENTAL SERVICES INC. <small>ESTABLISHED 1990</small>	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-33 IRVING AVE., QUEENS NY - LOT 33		DATE 10/20/2015
	INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS

COMMENTS **STOP AT FIRST POSITIVE**

☒ **PLM** ☒ **NOB-PLM** ☒ **NOB-TEM**
☐ **6 HRS** ☒ **12 HRS** ☐ **24 HRS**

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
6	13	INTERNAL WINDOW	INTERIOR			(-) NAD	(-) NAD
6	14	PUTTY				↓	↓
7	15	TAR ON UNDER BLOCK				(+) 2.85% CH	NA
7	16	WAX				NA	NA
8	17	WHITE PAINT ON WALL				(-) NAD	(-) TR. CH
8	18	CINDER BLOCK Joints				↓	↓
9	19	BROWN PAPER DOOR				(-) NAD	↓
9	20	INSULATION				(-) NAD	↓
10	21	PANEL BOARD BACKING		ABANDONED PANEL		(+) 6.0% CH	
10	22	PAPER		↓		NA	
11	23	BLACK PANEL COMPONENTS	6	↓		(-) NAD	(-) NAD
11	24	(BAVELITE)		↓		↓	↓


TRANSMITTAL OF RESULTS :
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
 FAX # :

BATCH # : **15 - 12-025**

CHAIN OF CUSTODY RECORD

RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/2/2015	TIME :	16:30
RECEIVED BY :	J. A. K. K...	DATE :	12/2/2015	TIME :	16:30
LABORATORY ACCREDITATION : NVLAP# 101958 ELAP# 10955					

 ATHENICA ENVIRONMENTAL SERVICES INC.	ADDRESS	DATE	# OF SAMPLES
	WOLFF-ALPORT CHEMICAL CO SITE, 11-33 IRVING AVE., QUEENS NY - LOT 33	10/20/2015	
INSPECTOR	CLIENT	PROJECT #	
J. BARDIOVSKY/ W. SIKORSKI	CDM SMITH	IFB-3323-054-004-CS	52

COMMENTS **STOP AT FIRST POSITIVE**

☒ PLM ☒ NOB-PLM ☒ NOB-TEM
☐ 6 HRS ☒ 12 HRS ☐ 24 HRS

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
12	25	STUCCO	EXTERIOR		(-)NAD		
12	26				↓		
13	27	PINK PAINT ON					
13	28	STUCCO			(-)NAD		(-)NAD
14	29	EXP. JOINT SIDEWALK	INTERIOR		↓		
14	30	CAULKING			(-)NAD		(-)NAD
15	31	ASPHALT AT EXTERIOR			↓		
15	32	BASE OF BLK.			(-)NAD		(-)NAD
16	33	TEXTURED GREY PAINT	INTERIOR		↓		
16	34	ON METAL BEAMS			(-)NAD		(-)NAD
17	35	CONCRETE/CEMENT			↓		
17	36	BOARD AT CEILING			(-)NAD		


TRANSMITTAL OF RESULTS:

☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE #:
FAX #:

BATCH #: 15 - 12-025

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY:	JURAJ BARDIOVSKY	DATE:	12/2/2015
RECEIVED BY:	J. Y. IKARU	DATE:	12/2/2015
LABORATORY ACCREDITATION:		TIME:	16:30
NVLAP# 101958 ELAP# 10955		TIME:	16:30

 ATTERANGA ENVIRONMENTAL SERVICES INC. <small>ESTABLISHED 1998</small>	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 11-33 IRVING AVE., QUEENS NY - LOT 33	DATE 10/20/2015	# OF SAMPLES 15
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS	
INSPECTOR J. BARDIOVSKY/ W. SIKORSKI			

☒ PLM ☒ NOB-PLM ☒ NOB-TEM
☐ 6 HRS ☒ 12 HRS ☐ 24 HRS

COMMENTS **STOP AT FIRST POSITIVE**

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
18	37	TAR ON EASTERIM	ROOF			(-) 0.69/CH	NA
18	38	b				(+) 1.59/CH	NA
19	39	ROOF INSULATION					
19	40	b					
20	41	ROOF MEMBRANE				(+) 7.68/CH	NA
20	42	b				NA	NA
21	43	ROOF FLASHING				(-) 0.72/CH	NA
21	44	b				(+) 2.2/CH	NA
22	45	PITCH POCKET TAR				(+) 2.25/CH	NA
22	46	b				NA	NA
23	47	FLASHING ON ROOF				(+) 10.9/CH	NA
23	48	FLANS				NA	NA

TRANSMITTAL OF RESULTS :
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
 FAX # :

BATCH # : **15 - 12-025**

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/21/2015
RECEIVED BY :	<i>[Signature]</i>	DATE :	12/21/2015
LABORATORY ACCREDITATION :		TIME :	16:30
NVLAP# 101958 ELAP# 10955		TIME :	16:30



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS			SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
	COLOR	Brown					
01 15-12-032-01	# LAYERS	1		Brick Mortar, Interior/Exterior	0%	100%	NAD
	SCAN						
02 15-12-032-02	COLOR	Brown		Brick Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS	1					
	SCAN						
03 15-12-032-03	COLOR	Brown		Brick Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS	1					
	SCAN						
04 15-12-032-04	COLOR	Brown		Cinderblock Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS	1					
	SCAN						
05 15-12-032-05	COLOR	Brown		Cinderblock Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS	1					
	SCAN						
06 15-12-032-06	COLOR	Brown		Cinderblock Mortar, Interior/Exterior	0%	100%	NAD
	# LAYERS	1					
	SCAN						



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

ANALYTICAL RESULTS

CLIENT ID # LABORATORY ID #	STEREO MICROSCOPY RESULTS			SAMPLE DESCRIPTION	FIBROUS MATERIAL	NON FIBROUS MATERIAL	% ASBESTOS AND TYPE
09 15-12-032-09	COLOR	White/Brown		Wall Sheetrock, Interior	45%CELL	55%	NAD
	# LAYERS	2					
	SCAN						
10 15-12-032-10	COLOR	White/Brown		Wall Sheetrock, Interior	60%CELL	40%	NAD
	# LAYERS	2					
	SCAN						
11 15-12-032-11	COLOR	White/Brown		Ceiling Sheetrock, Interior	25%CELL	75%	NAD
	# LAYERS	2					
	SCAN						
12 15-12-032-12	COLOR	White/Brown		Ceiling Sheetrock, Interior	20%CELL	80%	NAD
	# LAYERS	2					
	SCAN						
23 15-12-032-23	COLOR	White		Door Mortar, Facades	0%	100%	NAD
	# LAYERS	1					
	SCAN						
24 15-12-032-24	COLOR	White		Door Mortar, Facades	0%	100%	NAD
	# LAYERS	1					
	SCAN						



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

BULK SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY

CLIENT: Athenica Environmental Services Inc. / 45-09 Greenpoint Ave., LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
DATE OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

Analyst: 
K. Esnard

Laboratory Director: 
E. Dimitrakas

- NAD: No Asbestos Detected, CELL: Cellulose, FBGL: Fiberglass, H: Hair, SY: Synthetics, CH: Chrysotile, AMOS: Amosite, TRE: Tremolite, ANTH: Anthophyllite, ACT: Actinolite, CRO: Crocidolite, VERM: Vermiculite.
- Analytical Methodologies: EPA 600/M4-82-020 (Point Count only) and ELAP Method 198.1.
- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- The liability of Laboratory Testing Services Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-032
DATES OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%All	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
07	15-12-032-07	White Coating on Bricks/Under Blocks, Interior	28.16	16.09	55.75	NAD	NA	NAD	NA	Negat.
08	15-12-032-08	White Coating on Bricks/Under Blocks, Interior	28.04	12.62	59.35	NAD	NA	NAD	NA	Negat.
13	15-12-032-13	Roof Membrane, Small Roof at Back	48.03	13.68	32.55	NAD	NA	5.74	Chrys.	Posit.
14	15-12-032-14	Roof Membrane, Small Roof at Back	49.38	13.83	36.79	NAD	NA	SAMPLE NOT ANALYZED		
15	15-12-032-15	Roof Flashing, Small Roof at Back	45.21	7.31	43.69	3.80	Chrys.	NA	NA	Posit.
16	15-12-032-16	Roof Flashing, Small Roof at Back	56.37	6.76	36.87	SAMPLE NOT ANALYZED				

ANALYST
E. Loukianova

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-032
DATES OF ANALYSIS: 12/04/15	DATE OF REPORT: 12/08/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%AI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
17	15-12-032-17	Roof Tar on Walls, Small Roof at Back	77.36	13.19	7.56	Trace	Chrys.	1.89	Chrys.	Posit.
18	15-12-032-18	Roof Tar on Walls, Small Roof at Back	77.97	1.41	20.62	Trace	Chrys.	SAMPLE NOT ANALYZED		
19	15-12-032-19	Tar Above Store Gate, Facades	69.70	4.68	25.62	NAD	NA	NAD	NA	Negat.
20	15-12-032-20	Tar Above Store Gate, Facades	70.50	5.94	23.56	NAD	NA	NAD	NA	Negat.
21	15-12-032-21	Tar/Paint (Purple) on Wall, Facades	52.86	2.38	44.76	NAD	NA	NAD	NA	Negat.
22	15-12-032-22	Tar/Paint (Purple) on Wall, Facades	63.27	5.71	24.82	NAD	NA	6.20	Chrys.	Posit.

Eh

ANALYST
E. Loukianova


S. Dimitrakas

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the service charged, shall in no event exceed the amount of the invoice.



 AT&T ENVIRONMENTAL TAL SERVICES, INC.	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 15-14 COOPER AVE., QUEENS NY - LOT 48	DATE 10/24/2015
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS
INSPECTOR J. BARDIOVSKY/ W. SIKORSKI		# OF SAMPLES

PLM ☒ NOB-PLM ☒ NOB-TEM
6 HRS ☐ 12 HRS ☒ 24 HRS

COMMENTS **STOP AT FIRST POSITIVE**


HOM. AREA	SAMPLER #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
1	1	BRICK MORTAR	INTERIOR EXTERIOR		(-)NAD		
1	2						
1	3						
2	4	CINDERBLOCK MORTAR			(-)NAD		
2	5						
2	6						
3	7	WHITE COATING ON	INTERIOR		(-)NAD	(-)NAD	(-)NAD
3	8	BRICKS/CINDERBLOCK					
4	9	WALL SHEETROCK			(-)NAD		
4	10						
5	11	CEILING SHEETROCK			(-)NAD		
5	12						

TRANSMITTAL OF RESULTS :
[] STANDARD
[] TELEPHONE RESULTS TO
[] FAX RESULTS TO

TELEPHONE # :
FAX # :

BATCH # : 15 - 12-032

RELINQUISHED BY : JURAJ BARDIOVSKY	DATE : 12-13-2015	TIME : 10:00
RECEIVED BY : <i>A. S. S. S.</i>	DATE : 12-13-2015	TIME : 1000
LABORATORY ACCREDITATION : NVLAP# 101958 ELAP# 10955		

 ATHENICA ENVIRONMENTAL SERVICES, INC.	ADDRESS WOLFF-ALPORT CHEMICAL CO SITE, 15-14 COOPER AVE., QUEENS NY - LOT 48		DATE 10/24/2015
	INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS

☒ **PLM** ☐ **NOB-PLM** ☐ **NOB-TEM**
☐ **6 HRS** ☒ **12 HRS** ☐ **24 HRS**

COMMENTS **STOP AT FIRST POSITIVE**

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
6	13	ROOF MEMBRANE	SMALL ROOF AT BACK			(-) NAD	(+) 5.74% CH
6	14						NA
7	15	ROOF FLASHING				(+) 3.8% CH	NA
7	16					NA	NA
8	17	ROOF TAR ON WALLS				(-) TR. CH	(+) 1.89% CH
8	18						NA
9	19	TAR ABOVE STORE	FACADES			(-) NAD	(-) NAD
9	20	GATE					
10	21	TAR (PAINT (PURPLE))				(-) NAD	(-) NAD
10	22	ON WALL					(+) 6.2% CH
11	23	DOOR MORTAR					
11	24					(-) NAD	

TRANSMITTAL OF RESULTS :

- ☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE # :
 FAX # :

BATCH # : **15 - 17-032**

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY :	JURAJ BARDIOVSKY	DATE :	12/3/2015
RECEIVED BY :	A. Aguirre	DATE :	12/3/2015
LABORATORY ACCREDITATION :			
NVLAP# 101958 ELAP# 10955			



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-125
DATES OF ANALYSIS: 12/09/15	DATE OF REPORT: 12/10/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%All	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
25	15-12-125-01	Roof Membrane (Bottom Layer), Roof	52.13	5.79	34.42	7.66	Chrys.	NA	NA	Posit.
26	15-12-125-02	Roof Membrane (Bottom Layer), Roof	85.29	1.47	13.24	SAMPLE NOT ANALYZED				
27	15-12-125-03	Roof Membrane (Top Layer), Roof	79.78	17.49	2.73	NAD	NA	Trace	Chrys.	Negat.
28	15-12-125-04	Roof Membrane (Top Layer), Roof	79.02	16.67	3.89	NAD	NA	0.43	Chrys.	Negat.
29	15-12-125-05	Parapet Wall Tar/Flashing, Roof	71.79	2.31	19.42	6.48	Chrys.	NA	NA	Posit.
30	15-12-125-06	Parapet Wall Tar/Flashing, Roof	80.50	2.50	17.00	SAMPLE NOT ANALYZED				

KE
ANALYST
A. Korionova

E. Dimitrakas
LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**BULK (NOB) ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY
AND TRANSMISSION ELECTRON MICROSCOPY**

CLIENT / ADDRESS: Athenica Environmental / 45-09 Greenpoint Avenue, LIC, NY 11104	PROJECT: 15-14 Cooper Ave., Queens
ANALYT. METHODOLOGIES: ELAP 198.6, ELAP 198.4	LABORATORY ID #: 15-12-125
DATES OF ANALYSIS: 12/09/15	DATE OF REPORT: 12/10/15

LABORATORY RESULTS


CLIENT #	LAB. ID #	LOCATION	%ORG	%ASI	%ALI	PLM RESULTS	TYPE OF ASBEST.	TEM RESULTS	TYPE OF ASBEST.	POSIT. / NEGAT.
31	15-12-125-07	Coping Stone Tar, Roof	67.65	1.90	24.66	5.78	Chrys.	NA	NA	Posit.
32	15-12-125-08	Coping Stone Tar, Roof	22.32	8.26	69.42	SAMPLE NOT ANALYZED				
33	15-12-125-09	Vent Stack Tar/Flashing, Roof	64.74	4.08	24.60	6.58	Chrys.	NA	NA	Posit.
34	15-12-125-10	Vent Stack Tar/Flashing, Roof	81.75	17.25	1.00	SAMPLE NOT ANALYZED				
35	15-12-125-11	Gooseneck Flashing, Roof	72.07	6.53	21.40	NAD	NA	NAD	NA	Negat.
36	15-12-125-12	Gooseneck Flashing, Roof	79.52	4.48	16.01	NAD	NA	NAD	NA	Negat.

ANALYST
A. Kortionova

LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY ACCREDITATION NUMBERS: NVLAP Lab Code 101958-0, ELAP 10955

- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Above results relate only to samples submitted and analyzed. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. Test reports may not be reproduced except in full and with prior approval of LTS Inc.
- NAD: No Asbestos Detected
- The liability of LTS Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.

 ATHENICA ENVIRONMENTAL SERVICES, INC. 15-14 COOPER AVE., QUEENS, NY - LOT 48	ADDRESS WOLFF-ALPORT CHEMICAL CO-SITE, 15-14 COOPER AVE., QUEENS, NY - LOT 48	DATE 12/4/2015
	CLIENT CDM SMITH	PROJECT # IFB-3323-054-004-CS
INSPECTOR J. BARDIOVSKY/ W. SIKORSKI	# OF SAMPLES 12	

ANAL 22C 159
 TEM ONLY

COMMENTS **STOP AT FIRST POSITIVE**

HOM. AREA	SAMPLE #	SAMPLE DESCRIPTION	SAMPLE LOCATION	FIELD COMMENTS	LABORATORY RESULTS		
					PLM	PLM-NOB	TEM-NOB
12 1	25	ROOF MEMBRANE (BOTTOM LAYER)	ROOF				(+) 7.66 / CH
12 2	26	ROOF MEMBRANE (TOP LAYER)					NA
13 3	27	PARAPET WALL TARY					(-) 7.28 / CH
13 4	28	FLASHING					(-) 0.83 / CH
14 5	29	CORING STONE					(+) 6.48 / CH
14 6	30	TAR					NA
15 7	31	VENT STACK TARY					(+) 5.78 / CH
15 8	32	FLASHING					NA
16 9	33	GOOSENECK FLASHING					(+) 6.58 / CH
16 10	34						NA
17 11	35						(-) NAD
17 12	36						(-) NAD

TRANSMITTAL OF RESULTS:
☐ STANDARD
☐ TELEPHONE RESULTS TO
☐ FAX RESULTS TO

TELEPHONE #:
 FAX #:
 BATCH #: 15 -12-125

RELINQUISHED BY:	JURAJ BARDIOVSKY	DATE:	12/8/2015	TIME:	13:50
RECEIVED BY:	<i>[Signature]</i>	DATE:	12/8/2015	TIME:	13:55
LABORATORY ACCREDITATION:					
NVLAP# 101958 ELAP# 10955					

analyzed by A. Porionova May 12-9-15



LABORATORY TESTING SERVICES INC.
45-09 GREENPOINT AVE.
LIC, NY 11104
Ph.: (718) 389 3470, Fax: (718) 389 3471

**PAINT CHIP ANALYSIS FOR LEAD CONTENT BY ATOMIC ABSORPTION
SPECTROPHOTOMETRY**

CLIENT: Athenica Environmental Services
LABORATORY ID #: 15-11-046
DATE OF ANALYSIS: 12/05/15
DATE RECEIVED: 11/24/15

CLIENT ADDRESS: 45-09 Greenpoint Ave. L.I.C., NY 11104
PROJECT: 12-25 Irving Avenue
ANALYT. METHODOLOGY: ASTM D3335-85a
DATE OF REVISED REPORT: 12/17/15

LABORATORY RESULTS

CLIENT #	LAB. ID #	LOCATION	% Pb/weight
151110420-01	15-11-046-01	Terra Nova, Bay, Wall #2, Shelf #5, Purple	0.992
151110420-02	15-11-046-02	Terra Nova, Closet #3, Wall #3, Column #2, White	1.918



for TB

ANALYST
T. Balema



LABORATORY DIRECTOR
E. Dimitrakas

LABORATORY CERTIFICATION NUMBER: ELAP 10955

MDL= 5.7 µg Pb/sample

Reporting Limit = 20.0 µg Pb/sample

- Above results relate only to samples submitted and analyzed.
- Samples will be stored for sixty (60) days. LTS Inc. should be notified within this time frame for a true duplicate analysis.
- Laboratory Testing Services Inc. (LTS) cannot verify for results based on client information, but only for results as µgPb/samples.
- The liability of Laboratory Testing Services Inc., with respect to the services charged, shall in no event exceed the amount of the invoice.
- All QC requirements were met unless stated otherwise.
- Above results are corrected for contamination.



APPENDIX B:

9.0 Personnel Certificates

NYC DEP ASBESTOS CONTROL PROGRAM
ASBESTOS CERTIFICATE



SIKORSKI,
WOJCIECH M
INVESTIGATOR
128636

EXPIRES: 2/24/2017
DOB: 2/24/1970 M. 6' 00"



MUST BE CARRIED ON ALL ASBESTOS PROJECTS



DMV ID: 212715648

This certificate must be shown to a
NYCDEP representative upon request.
Report loss immediately to NYCDEP
Asbestos Control Program, 8th floor
59-17 Junction Blvd., Flushing, NY 11373

01213 000469797 51

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



WOJCIECH SIKORSKI
CLASS(EXPIRES)
D INSP(02/16) I PD (02/15)

CERT# 08-08985
DMV# 212715648

MUST BE CARRIED ON ASBESTOS PROJECTS



01213 080416376 73

EYES BRO
HAIR GRY
HGT 6' 00"

IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE



NICHOLAS DELGROSSO
CLASS(EXPIRES)
C ATEC(07/16) D INSP(07/16)
H PM (07/16)

CERT# 12-11534
DMV# 369693570

MUST BE CARRIED ON ASBESTOS PROJECTS



01213 000337188 52

EYES BRO
HAIR BRO
HGT 5' 11"

IF FOUND RETURN TO:
NYS DOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240


STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

 **JURAJ BARDIOVSKY**
CLASS(EXPIRES)
D INSP(10/16)


CERT# 08404420
DMV# 874167328



MUST BE CARRIED ON ASBESTOS PROJECTS

 01213 00063939 87

EYES HAZ
HAIR BRO
HGT 6' 00"



IF FOUND RETURN TO:
NYSDEL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

United States Environmental Protection Agency

This is to certify that



Juraj Bardiovsky

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

New York

This certification is valid from the date of issuance and expires September 05, 2018

NY-R-18077-2

Certification #

September 02, 2015

Issued On

John Gorman, Chief

Pesticides & Toxic Substances Branch



Certificate of Achievement

This is to certify that

Juraj Bardiovsky

Athenica Environmental Services

on the 21st day of July, 2011 successfully completed the factory training for

RMD's LPA-1 Lead Paint Inspection System

including, but not limited to the topics of Radiation Safety, DOT Regulations, and the Proper Use of the Instrument.





Sia Afshari Product Manager RMD
44 Hunt St, Watertown, Massachusetts

New York
RISK ASSESSOR



**Certified Lead-Based
Paint Professional**

Certification No NY-R-113399-1	
Date of Birth 08/24/1978	Expiration Date 10/18/2014
Address 69-08 38th Ave. Woodside, NY 11377	
Badge Holder's Name Jeffrey Paul Strykowski	
Badge Holder's Signature 	

If found, drop in any mailbox
Postmaster: Please return to:
US EPA
1200 Pennsylvania Ave, NW
(MC-74040T)
Washington, DC 20460
or call 1-800-424-LEAD



United States Environmental Protection Agency

This is to certify that



Jeffrey Strykowski

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

New York

This certification is valid from the date of issuance and expires

November 01, 2017

NY-R-113399-2

Certification #

September 10, 2014

Issued On



John Gorman, Chief

Pesticides & Toxic Substances Branch

Certificate of Achievement

This is to certify that

Jeff Strykowski

Athenica Environmental Services

on the 21st day of July, 2011 successfully completed the factory training for

RMD's LPA-1 Lead Paint Inspection System

including, but not limited to the topics of Radiation Safety, DOT Regulations, and the Proper Use of the Instrument.



Sia Afshari

Sia Afshari Product Manager RMD
44 Hunt St, Watertown, Massachusetts

APPENDIX C:

10.0 Consulting Company License

New York State – Department of Labor

Division of Safety and Health
License and Certificate Unit
State Campus, Building 12
Albany, NY 12240

ASBESTOS HANDLING LICENSE

Athenica Environmental Services Inc.

45-09 Greenpoint Avenue

Long Island City, NY 11104

FILE NUMBER: 99-0763

LICENSE NUMBER: 29663

LICENSE CLASS: RESTRICTED

DATE OF ISSUE: 06/11/2015

EXPIRATION DATE: 07/31/2016

Duly Authorized Representative – Spiro Dongaris:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.



Eileen M. Franko, Director
For the Commissioner of Labor

United States Environmental Protection Agency

This is to certify that

Athenica Environmental Services, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

New York

This certification is valid from the date of issuance and expires May 10, 2018

NY-1731-5

Certification #

January 13, 2015

Issued On



Michelle Price

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

APPENDIX D

11.0 Laboratory Accreditation

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER



Expires 12:01 AM April 01, 2016
Issued April 01, 2015
Revised April 03, 2015

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. EMANUEL DIMITRAKAS
LABORATORY TESTING SERVICES INC
45-09 GREENPOINT AVENUE
LONG ISLAND CITY, NY 11104

NY Lab Id No: 10955

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Material	Item 198.8 of Manual
Lead in Dust Wipes	EPA 7000B
Lead in Paint	ASTM D3335-85A

Sample Preparation Methods

ASTM E-1644-04

Serial No.: 52783

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Laboratory Testing Services Inc.
45-09 Greenpoint Avenue
Long Island City, NY 11104
Mr. Emanuel Dimitrakos
Phone: 718-389-3470 Fax: 718-389-3471
Email: edimitrakas@labtestingservices.com

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101958-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

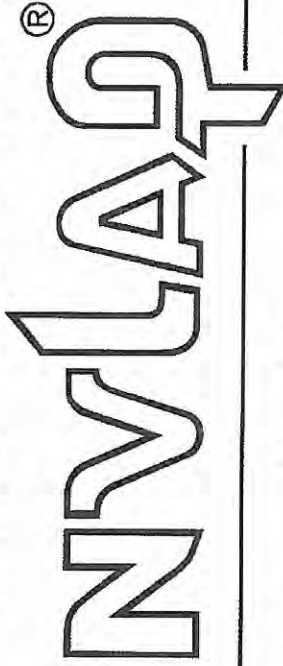
Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

A handwritten signature in black ink, appearing to read "Emanuel R. Dimitrakos".

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101958-0

Laboratory Testing Services Inc.
Long Island City, NY

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).

2015-06-29 through 2016-06-30

Effective Dates



A handwritten signature in black ink, appearing to read "William R. Murphy".

For the National Voluntary Laboratory Accreditation Program



AIHA

Laboratory Accreditation
Programs, LLC

July 31, 2015

Laboratory ID: 100287

Emanuel Dimitrakas
Laboratory Testing Services, Inc.
45-09 Greenpoint Ave. Suite 204
Long Island City, NY 11104

Dear Mr. Dimitrakas:

Congratulations! The AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC's Analytical Accreditation Board (AAB) has approved Laboratory Testing Services, Inc. as an accredited Industrial Hygiene and Environmental Lead laboratory.

Accreditation documentation includes the IHLAP and ELLAP accreditation certificate, scope of accreditation document and a copy of the current AIHA-LAP, LLC license agreement (if your completed agreement is not on file at AIHA-LAP, LLC). The accreditation symbol has been designed for use by all AIHA-LAP, LLC accredited laboratories. If your laboratory chooses to use the symbol in its advertising the laboratory's accreditation, you must complete and return the AIHA-LAP, LLC license agreement to a Laboratory Accreditation Specialist. Once submitted, an electronic copy of the accreditation symbol will be sent to you. Please inform us if your laboratory does not wish to use the symbol in advertising.

Laboratory accreditation shall be maintained by continued compliance with IHLAP and ELLAP requirements (*see Policy Modules 2B, 2C, and 6*), which includes proficient participation in AIHA-LAP, LLC approved proficiency testing, demonstration of competency, or round robin program as indicated on the AIHA-LAP "Approved PT and Round Robin" webpage, its associated Scope/PT table, and as required in Policy Module 6, for all Fields of Testing (FoTs) for which the laboratory is accredited. An accredited laboratory that wishes to expand into a new FoT must submit an updated accreditation application to AIHA-LAP, LLC for review by the AAB.

Any changes in ownership, laboratory location, personnel, FoTs/Methods, or significant procedural changes shall be reported to AIHA-LAP, LLC in writing within twenty (20) business days of the change.

The accreditation certificate is the property of AIHA-LAP, LLC and must be returned to us should your laboratory withdraw or be removed from the IHLAP and ELLAP.

Again, congratulations. If you have any questions, please contact Lauren Schnack, Laboratory Accreditation Specialist, at (703) 846-0716.

Sincerely,

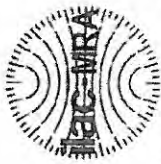
Cheryl O. Morton
Managing Director
AIHA Laboratory Accreditation Programs, LLC

AIHA Laboratory Accreditation Programs, LLC
3141 Fairview Park Drive, Suite 777, Falls Church, VA 22042 USA
main +1 703-846-0736 fax +1 703-207-8558

Twitter: @AIHA_LAP_LLC

R3 05/05/2015

Page 1 of 1



AIHA

Laboratory Accreditation
Programs, LLC

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Laboratory Testing Services, Inc.

45-09 Greenpoint Ave., Suite 204, Long Island City, NY 11104

Laboratory ID: 100287

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> INDUSTRIAL HYGIENE | Accreditation Expires: 08/01/2017 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL LEAD | Accreditation Expires: 08/01/2017 |
| <input type="checkbox"/> ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: |
| <input type="checkbox"/> FOOD | Accreditation Expires: |
| <input type="checkbox"/> UNIQUE SCOPES | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Gerald R. Schultz

Gerald Schultz, CIH
Chairperson, Analytical Accreditation Board

Revision 14: 03/26/2014

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Date Issued: 07/31/2015

APPENDIX E

12.0 Project Documents

CDM Federal Programs Corporation555 17th Street Suite 1100

Denver, Colorado 80202

(303) 383-2300 / Fax (303) 308-3003

SERVICE ORDER NO.: 3323-054-004-CS

Document Control No.: N/A

TRACKING NO.: 16910

Page 1 of 1

Government Client: U.S. Environmental Protection AgencyPrime Contract No./WA/DO/TO No.: EP-W-09-002Prime Contractor: CDM Federal Programs Corporation

Service Provider's Name & Address:

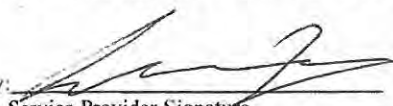
Athenica Environmental Services, Inc.
45-09 Greenpoint Avenue
Long Island City, NY 11104
Spiro Dongaris (sdongaris@athenica.com)
Tele: (718) 784-7490

Note: All contact with client MUST
be through CDM Federal Programs
Corporation unless initiated by client.

- ☐ Architect-Engineer Contract
☒ Service Contract Act is applicable
☒ Wage determination is applicable
☐ Waiver of Professional E&O insurance:

- ☐ Firm Fixed Price (lump sum)
☒ Fixed Unit Price (ID/IQ)
☐ Labor Hour (Not to Exceed)

Business Size: **SB**

*S.O. DATE	SUBCONTRACT ADMINISTRATOR	PERIOD OF PERFORMANCE		PAYMENT TERMS	
04/20/15	Raquel Cisneros	Execution through 12/31/15		NET 42	
ITEM NO.	DESCRIPTION OF SERVICES	QTY.	UNIT	UNIT PRICE	EXT. PRICE
	Provide Hazardous Materials Survey Services in support of the Wolff-Alport Chemical Company (WACC) Site located in Ridgewood, Queens County, New York in accordance with the attached Statement of Work and Price Sheet. CDM Federal Programs Corporation Terms and Conditions, Supplemental Conditions, Health and Safety Guideline, Site Specific Health and Safety and Service Contract Act Wage Rates are hereby incorporated into this Service Order.				
NOTES: *Order must be signed and returned within 10 days of Service Order date.				TOTAL:	\$8,745.00
Accepted by:  <u>4/23/15</u> Service Provider Signature Date CDM Federal Programs Corporation Signature Date					
Subject to the Service Order Standard Terms and Conditions dated August 2012 Rev. 2					

APPENDIX F

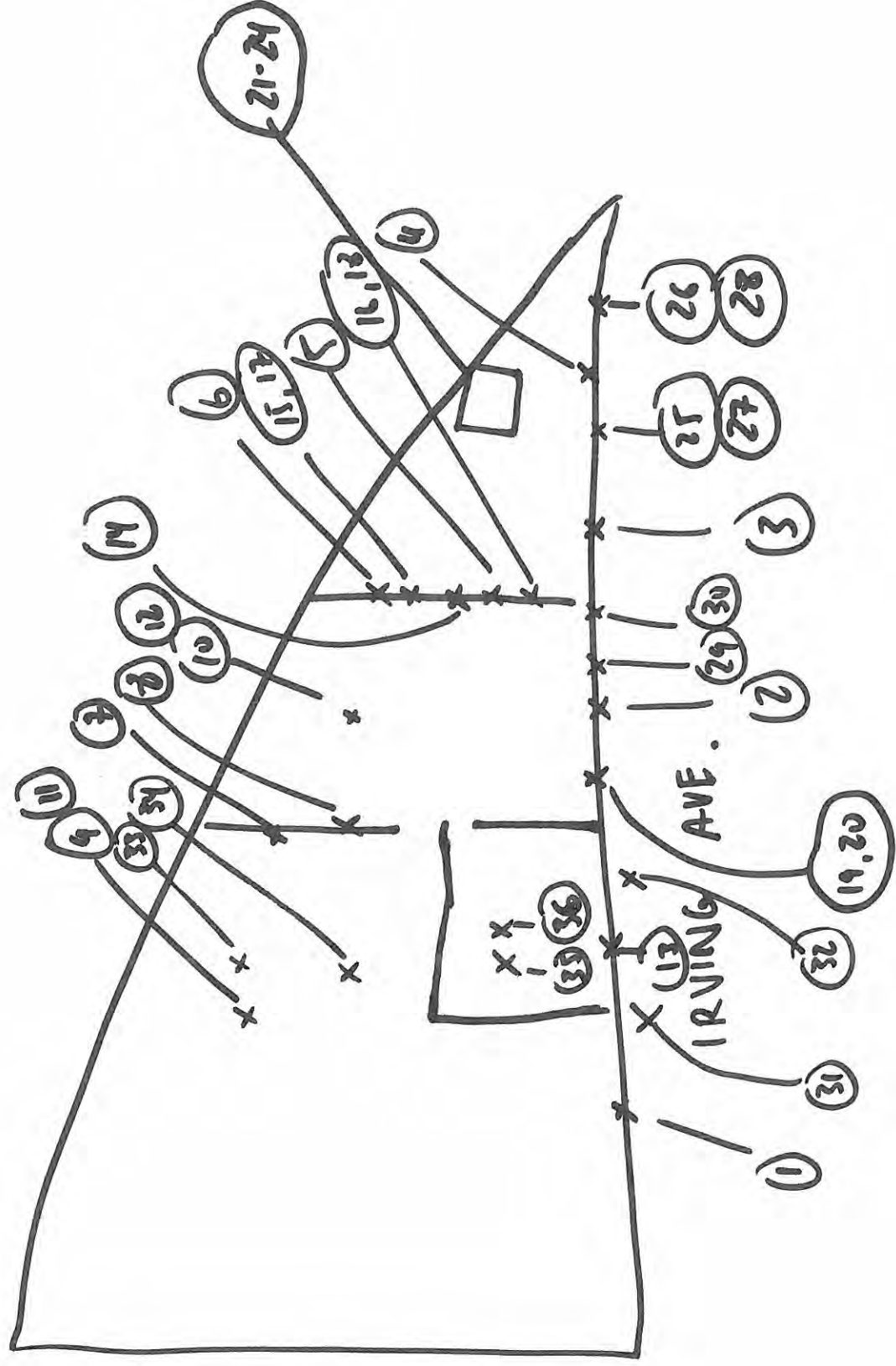
13.0 Sample Location Drawings

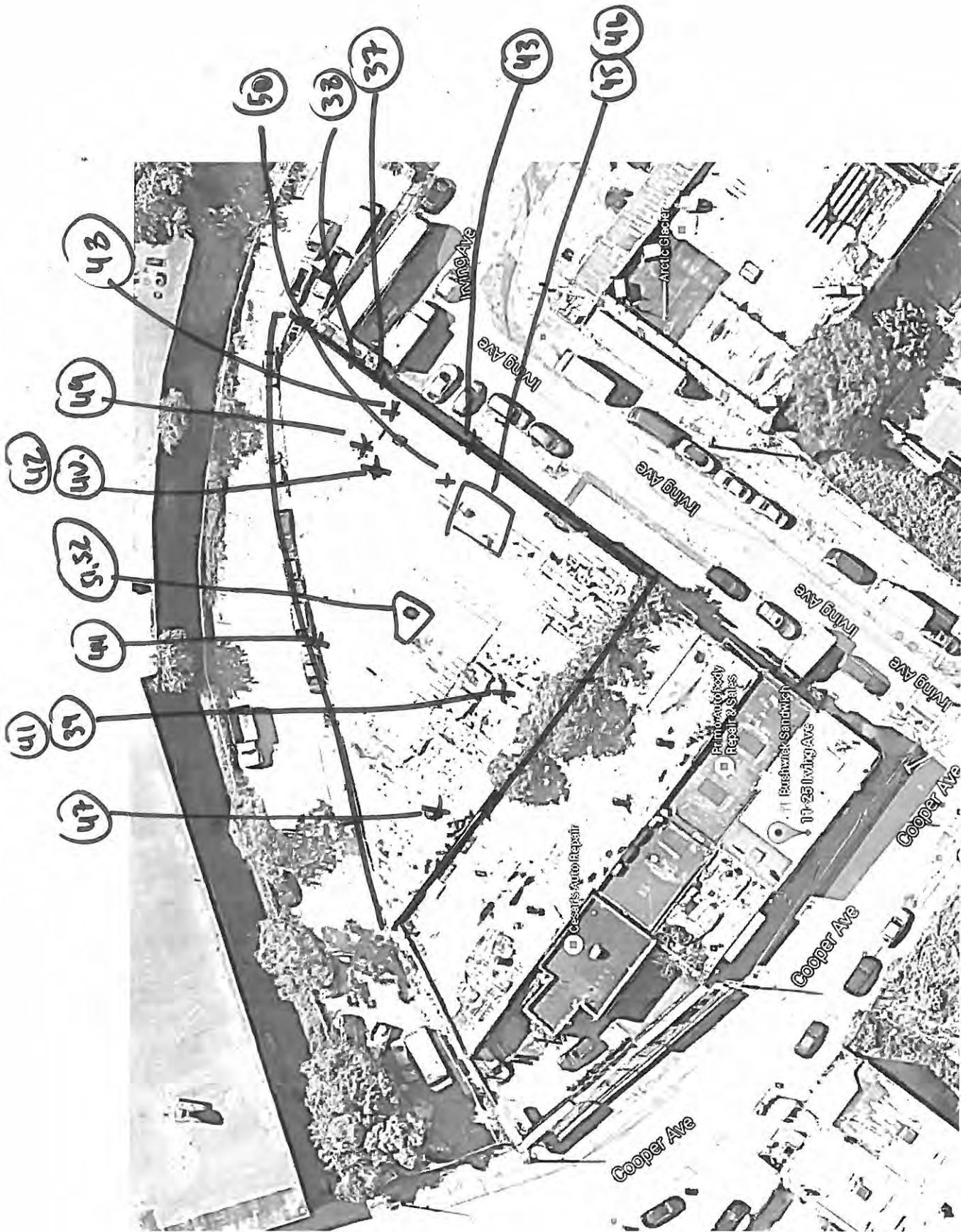
ACM SAMPLE LOCATION DRAWINGS

11-33 IRVING AVE, QUEENS, NY 11385

INV./INSP.: W. SIKORSKI, J. CARONOVSKY, N. DELGROSSO

DATE: 11/20/15



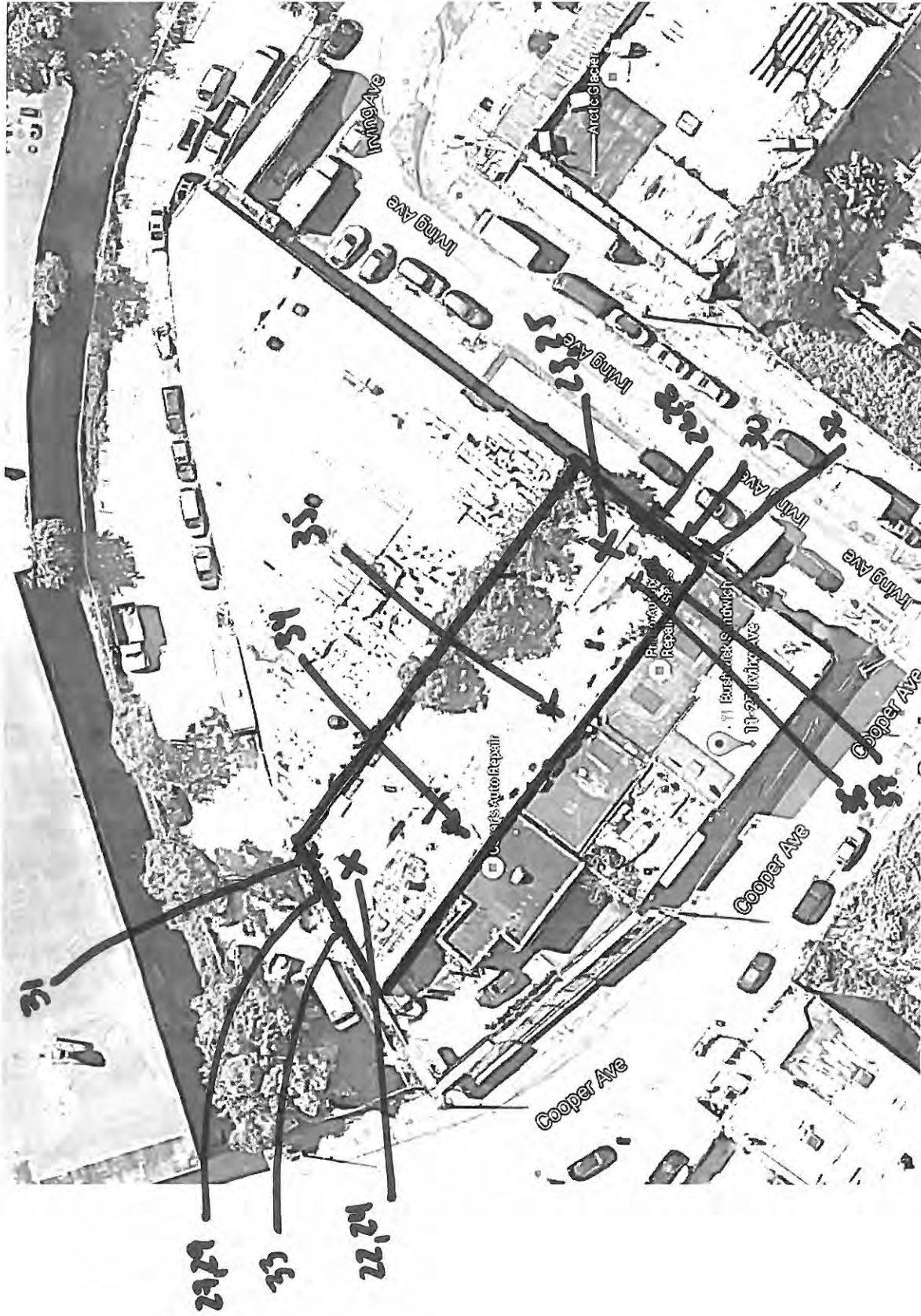


ALM SAMPLE LOCATION DRAWINGS:

11-33 IRVING AVE, QUEENS, NY 11385

INSR. INVT.: W. SIKORSKI, J. BAROLOVSKY, N. DELGRASSO

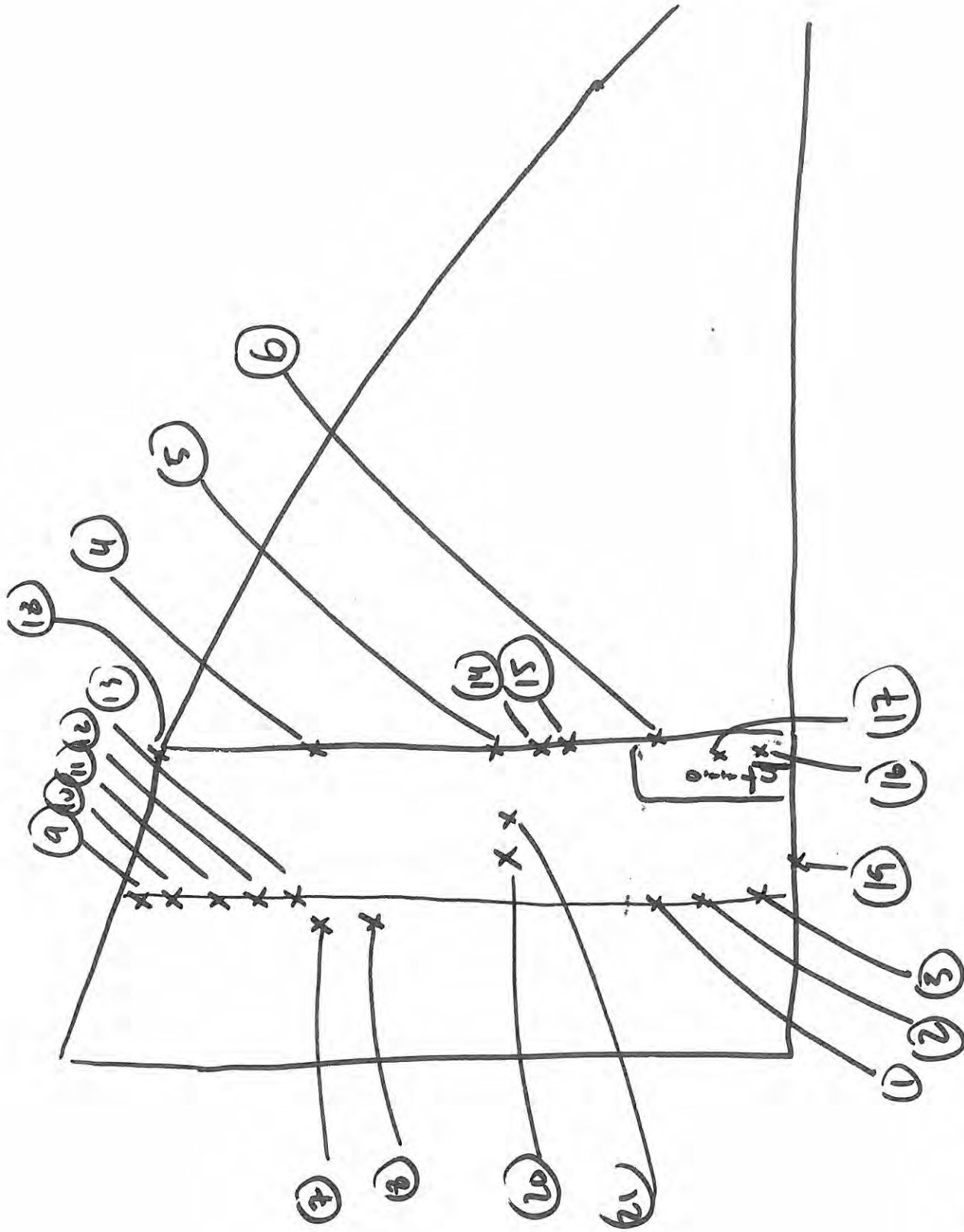
DATE: 11/20/15



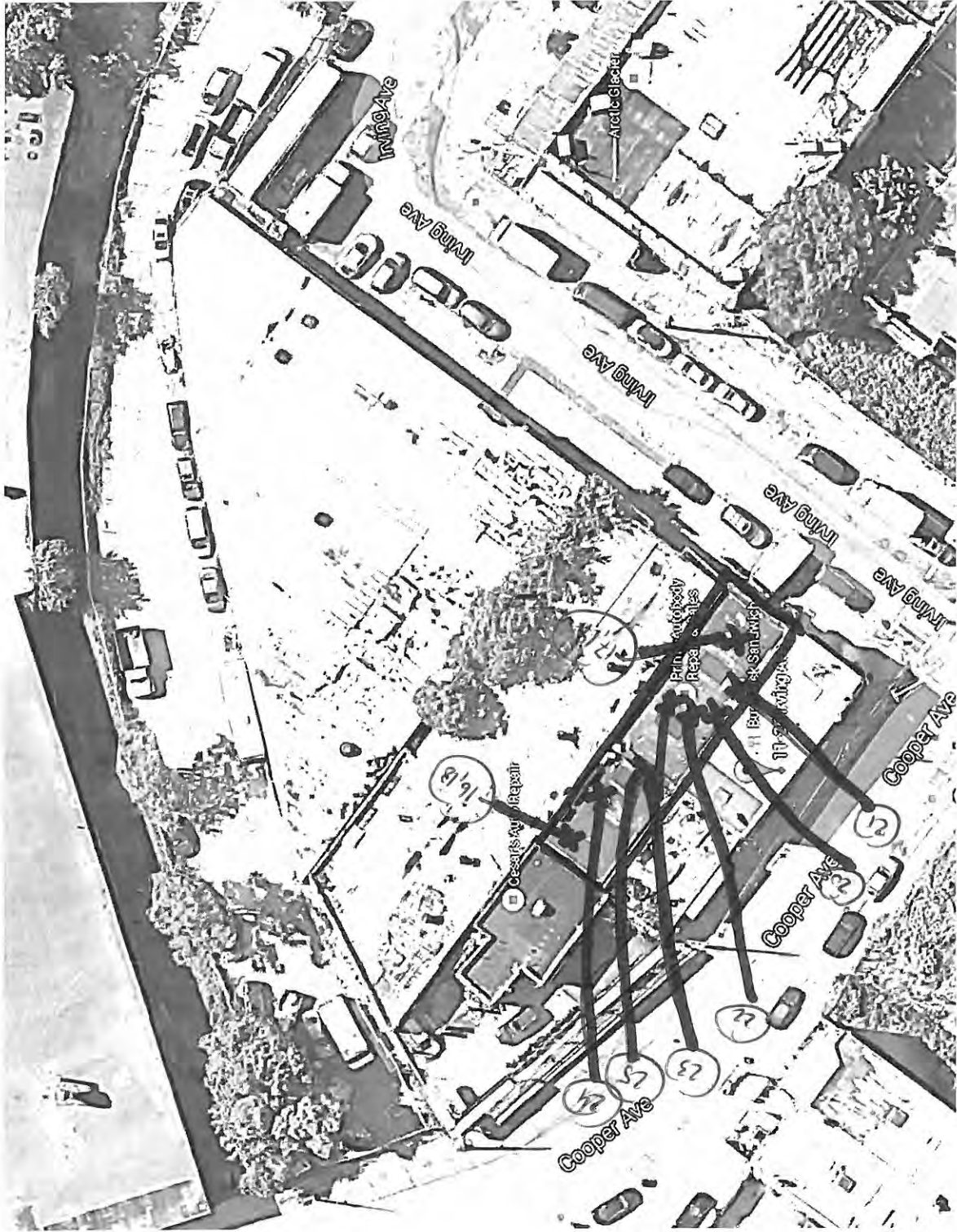
ACM SAMPLE LOCATION DRAWINGS - 11-29 IRVING AVE, QUEENS, NY 11385

INV. INSP. : W. SIKORSKI, J. BARDLOVSKY, N. DELGROSSO

DATE: 12/4/15



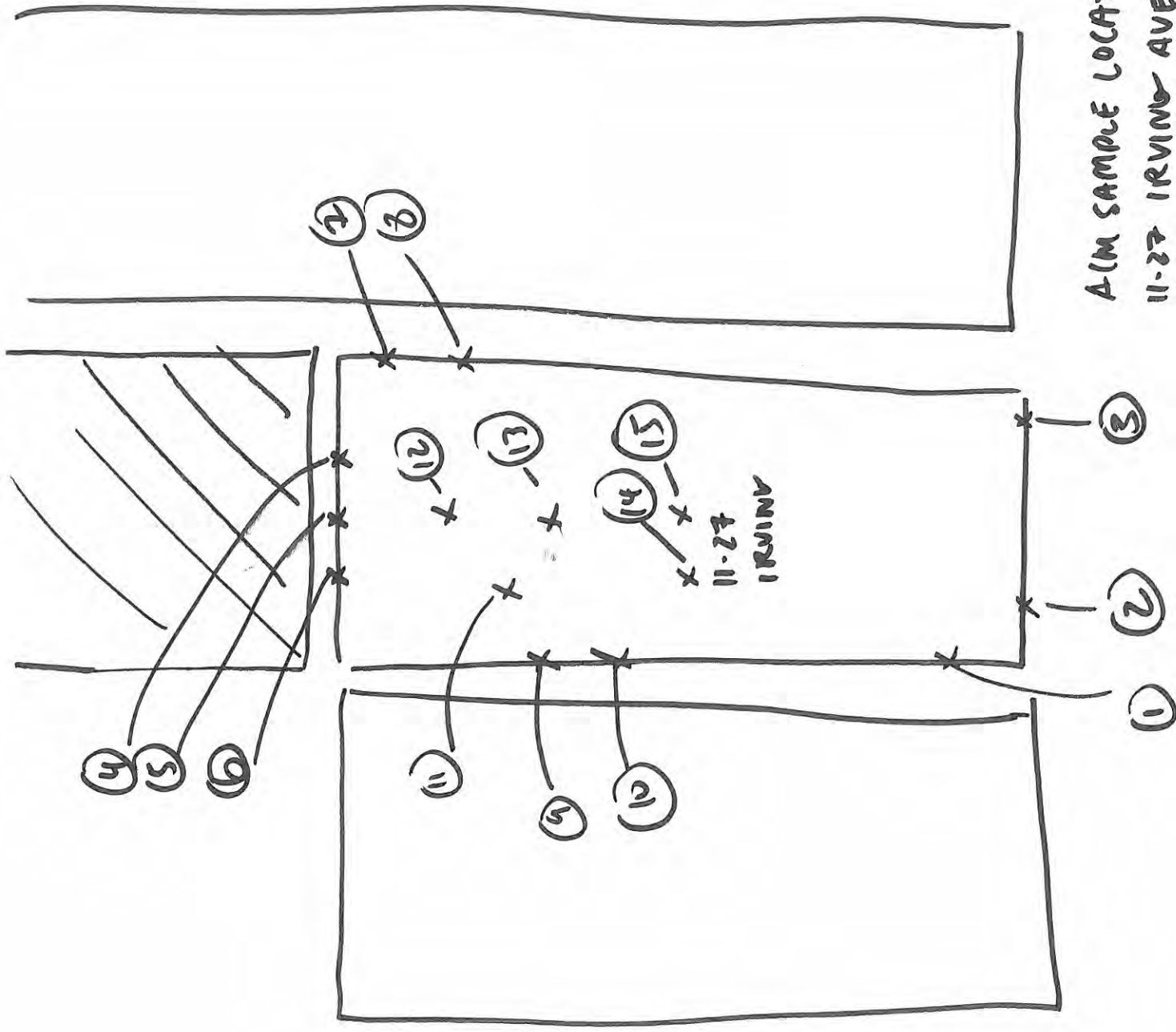
ACM SAMPLE LOCATIONS
 11-29 IRVING AVE, QUEENS, NY 11385
 INSP. / INV. : W. SIKORSKI, T. BARONOVSKY, N. DELGROSSO
 DATE: 10/24/15



ACM SAMPLE LOCATION DRAWINGS - 11-27 IRVING AVE, QUEENS, NY 11385

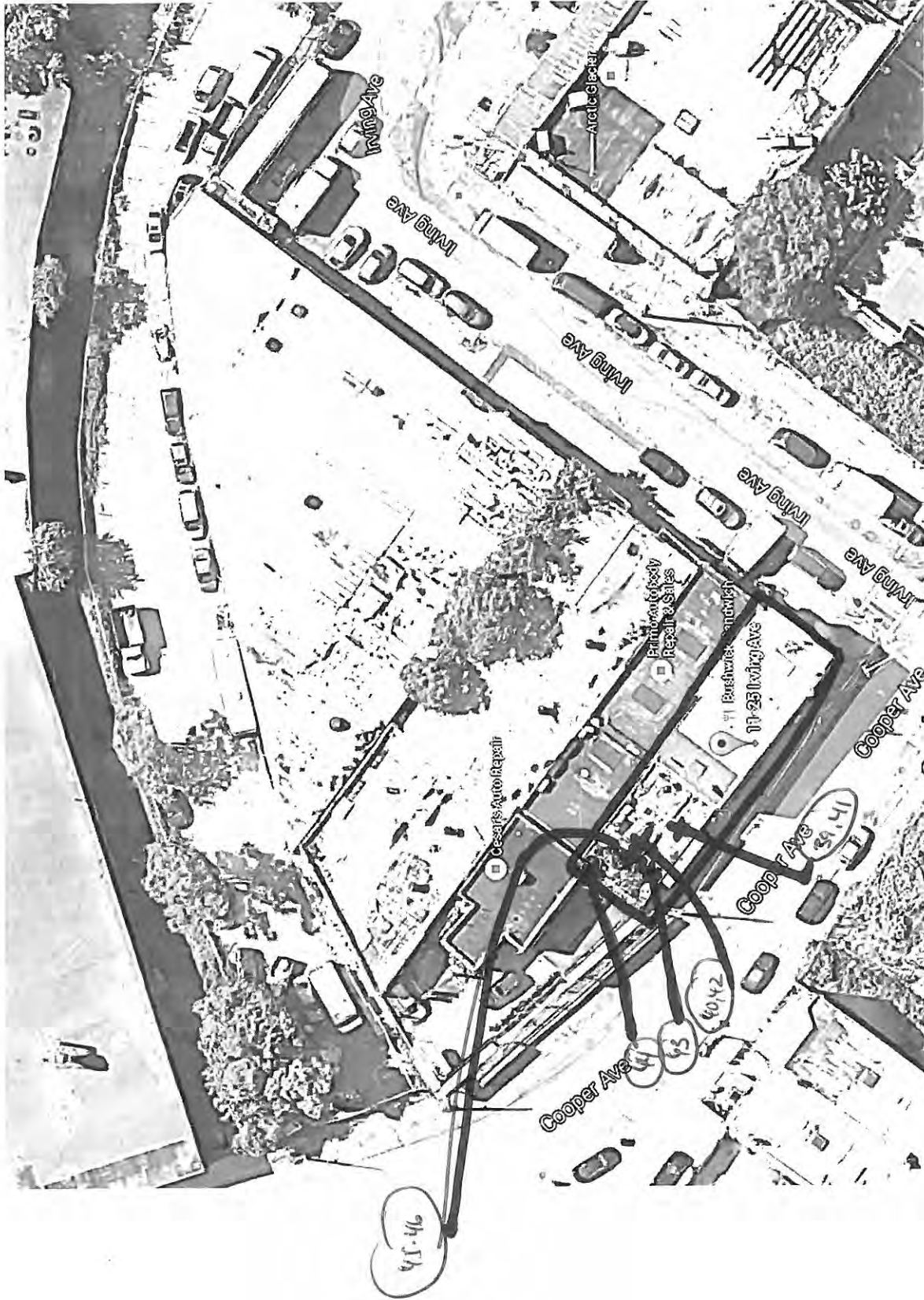
INSP. / INV. : W. SIKURSKI / J. BARDIOUSKY / N. DELGROSSO

DATE: 12/4/05

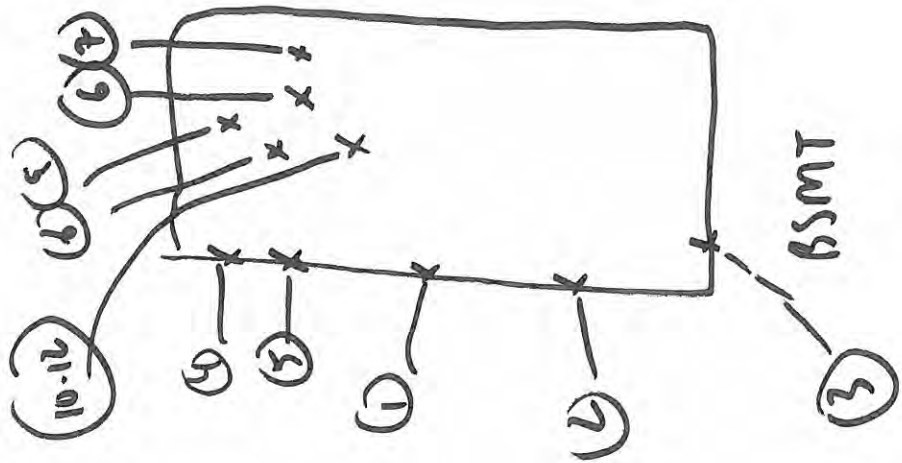
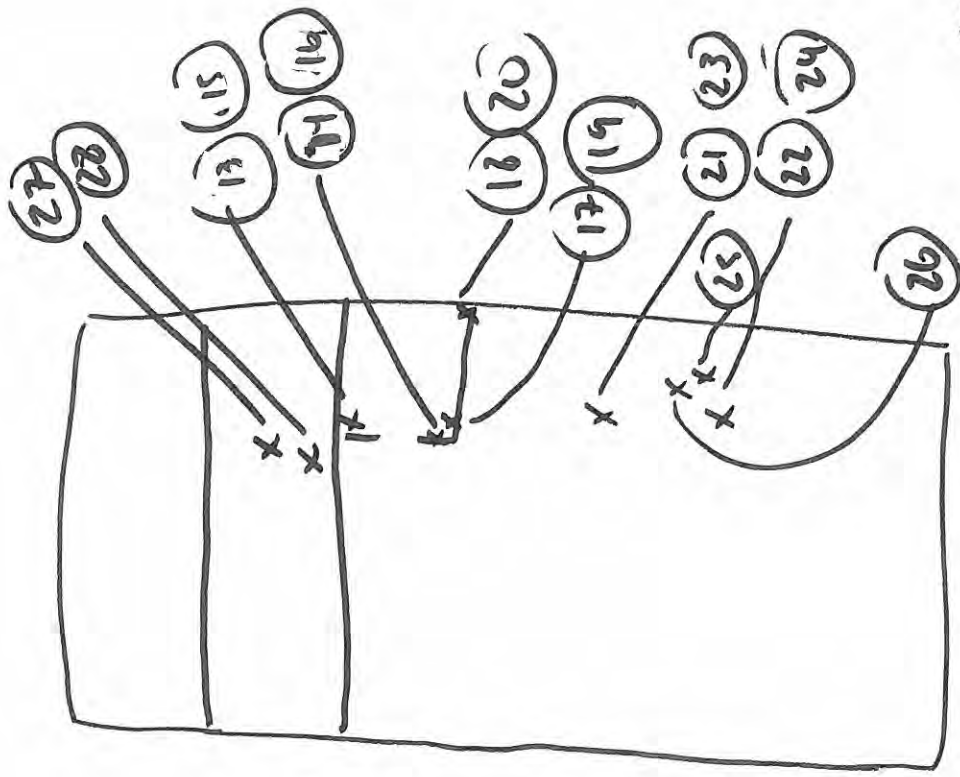


ALM SAMPLE LOCATIONS

11-27 IRVING AVE, QUEENS, NY 11385
 INSP./INV.: W. SIEURSKI, J. OARODIUSKY
 N. DELBROSSO, DATE: 11/24/15



ACM SAME LOCATION DRAWINGS
11-25 IRVING AVE, QUEENS, NY 11385
INV. / INSP.: W. SIKORSKI / J. BARDIONSKY / N. DELGROSSO
DATE: 12/4/15



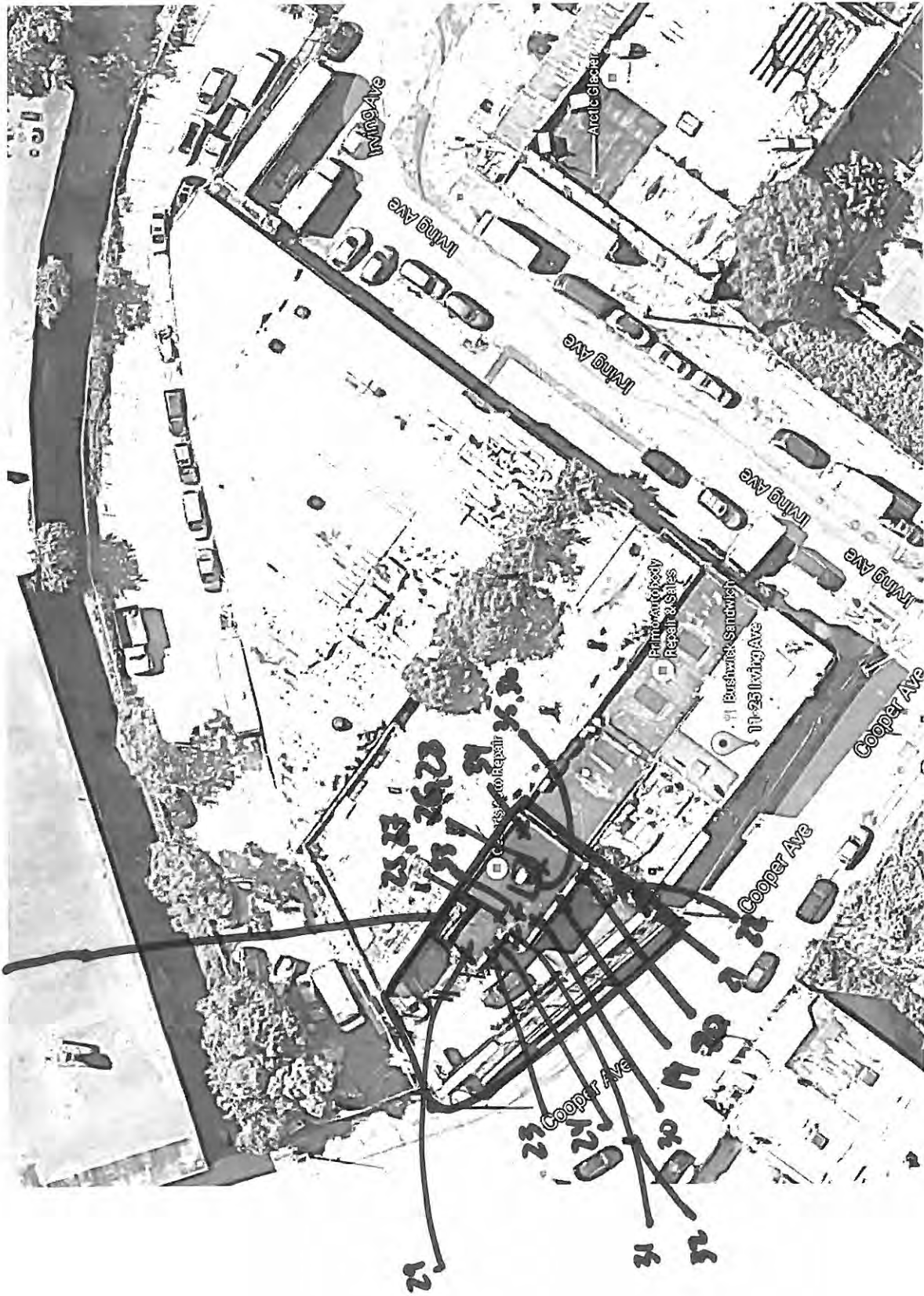
ALM SAMPLE LOCATION

11-25 IRVING AVE, QUEENS, NY 11385
 INSP. / INV.: W. SIKORSKI, J. BARDOVSKY,

N. DELGROSSO

DATE: 11/24/15

13-18

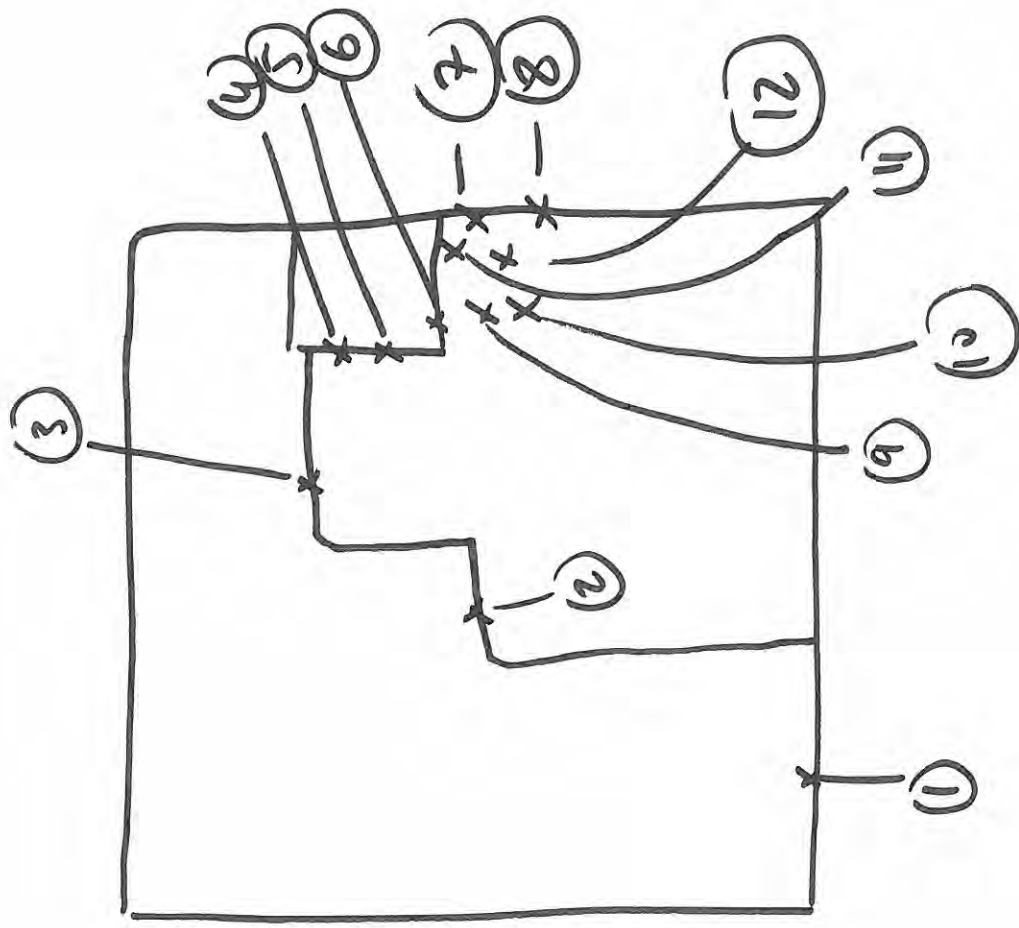


ACM SAMPLE LOCATION DRAWINGS - 1

INSP. / INV. : W. SMORSKI / J. BARDOLOVSKY / N. DELEGIOS

~~DATE~~ : 15-14 COOPER AVENUE, QUEENS, NY 11385

DATE : 12/4/18



ACM SAMPLE LOCATION

15-14 COOPER AVE. QUEENS, NY 11385

INSP./INV.: W. SIKORSKI, W. SIKORSKI, N. DELGROSSO

DATE: 11/24/15

Appendix C

Appendix C

March 2017 Structural Inspection Report



Memorandum

To: Mr. Thomas Mongelli, EPA Region 2

From: Ali Rahmani, CDM Smith

*Project: EPA Region 2 RAC2 Contract No.: EP-W-009-02
Work Assignment No.: 054-RICO-A282*

Document Control No.: 3323-054-03141

Date: March 8, 2017

Subject: Structural Foundation Inspection of Buildings at Wolf-Alport Chemical Company Site

1.0 Introduction

CDM Federal Programs Corporation (CDM Smith) received Work Assignment (WA) 054-RICO-A282 from the United States Environmental Protection Agency (EPA), Region 2 under Remedial Action Contract (RAC) 2 to complete a remedial investigation (RI) and feasibility study (FS) for the Wolff-Alport Chemical Company (WACC) site (Site) located in Ridgewood, Queens County, New York. As part of that effort, EPA Region 2 asked CDM Smith to conduct a structural foundation inspection of the buildings located at the Site (**Figure 1**).

2.0 Background

The United States Environmental Protection Agency (EPA), New York State (NYS), and the City of New York (NYC) are working together to reduce potential exposure to radiation caused by contamination as a result of historical operations at the Site. A combination of concrete and lead floor shielding was installed in 2013 to reduce radiation exposures to the occupants of the buildings from the contaminated soils.

The purpose of the WA FS is to identify, develop, screen, and evaluate a range of remedial alternatives for the contaminated media and provide the regulatory agencies with sufficient information to select a feasible and cost-effective remedial alternative that protects public health and the environment from potential risks at the Site.

3.0 Inspection Objective

To help develop and evaluate remedial alternatives for the Site, an inspection of the existing structures at the Site was performed to determine the feasibility of over excavating additional contaminated soil within the buildings to provide additional shielding to reduce the radiation

exposure to building occupants. CDM Smith Structures Specialist Paul Blomberg reviewed the site structures on Lots 46, 44, 42, and 33 (**Figure 1**) on February 17, 2017.

The ability to over-excavate additional soils within the structures depends on the size, location and depth of the structural foundations that support the building superstructure. If the structures are supported on shallow foundations, then over-excavation to the base of those shallow foundations is feasible and economical. However, further excavation below the base of shallow foundations would require underpinning of the foundations and the added cost of that work. Should the building be founded on a deep foundation system such as piles or drilled shafts, then available excavation depths would be much deeper without the need for underpinning.

4.0 Structural Discussion, Inspection and Observations

The NYC provided available drawings of the subject buildings, however those drawings are tenant improvement drawings; no structural drawings or original construction drawings are available. To visually identify the foundation systems used for the buildings, a field inspection was performed. As the foundations are buried below grade, the inspection focused on finding areas around or within the building where the foundations were exposed to view. Additionally, a soil sampling auger was used to determine the concrete footing elevation below the surface where accessible.

Each building along Irvine Ave. was visited to determine foundation type, location and depth. Weather during the inspection was sunny, with temperatures in the 30's °F and 6 inches of snow on the ground. Based on inspection observations, building construction was estimated to have occurred before 1940 with some buildings dating back to the 1920s. Below is a description of the pertinent structural observations of each building.

Jarabacoa Deli Basement, 11-25 Irving Ave (Block 3725 Lot 46)

The structure at 11-25 Irving Avenue is a 2-story wood framed building approximately 25 feet (ft) x 100 ft with a full basement, a deli on the first floor and apartments on the second floor. The basement consists of a brick foundation wall and concrete floor. The foundation for the brick foundation wall is unreinforced concrete and is partially exposed. After the building was constructed, it appears that the basement floor was dug out below the top of footing and a concrete slab on grade was cast approximately 8 inches below the adjacent top of footing. The foundation system for this building appears to be a shallow foundation with a continuous concrete strip footing below the unreinforced brick bearing walls. The height of the brick wall is 7 ft-2 inches with 2 inches x10 inches wood floor framing bearing on top of the brick. The floor joists bear directly on the top of the brick wall without a sole plate. Thickness of the basement wall concrete footing could not be determined.



Mr. Thomas Mongelli
March 8, 2017
Page 3

No wall or floor openings were observed that would allow observation of the foundation of the Celtic Custom Bike Shop, 11-27 Irving Ave (Block 3725 Lot 44).

Celtic Custom Bike Shop, 11-27 Irving Ave (Block 3725 Lot 44)

The structure at 11-27 Irving Avenue is a one-story building approximately 25 ft x 100 ft. The roof system is wood framed with brick walls on three sides, concrete masonry unit (CMU) walls to the rear and a concrete slab on grade floor. The floor is raised above the sidewalk level by 6 inches and provides shielding from the soil below. The building is surrounded on three sides by other buildings and open to the street at Irving Ave. The wall to the adjacent Deli (Lot 46) is built with only a several inch gap between the walls and shares a common wall to the southeast with Primo Auto Repair (Lot 42). The end of the building (northeast wall) abuts a one-story commercial building.

Ceilings and wall coverings covered the structural system so no additional observations of the structural system could be made. The foundation system is covered by the new floor slab installed in 2013. No footing information could be observed from the inside of the building. Adjacent buildings obscured any observations of the existing footings from the outside and the concrete sidewalk covered the grade in front of the building. In addition, no access to auger for foundation depth is possible for this building without concrete removal.

Primo Auto Repair, 11-29 Irving Ave (Block 3725 Lot 42)

The structure at 11-29 Irving Avenue is a 1-story building approximately 25 ft x 175 ft. The roof system is wood framed with brick walls and a concrete slab on grade floor. The floor is raised above the sidewalk level by 6 inches and provides shielding from the soil below. The building is surrounded on the two long sides by other buildings and open to the street at Irving Ave and open to the back at the former rail spur (Lot 31). The wall to the adjacent Bike Shop (Lot 44) and Terra Nova (Lot 42) share a common wall with this building. This building has pipe columns within the space along the long walls and steel wide flange beams supporting the roof joists. This indicates that individual footings may be cast below the columns and that the brick walls may not be load bearing. The brick walls likely provide lateral support for the structure. The end of the building (northeast wall) appears to be brick and is stucco covered.

Ceilings and wall coverings covered the structural system and additional observations were not possible. The foundation system is covered by the new floor slab installed in 2013. No footing information could be observed from the inside of the building. Adjacent buildings obscured any observations of the existing footings from the outside and the concrete sidewalk covered the grade in the front and rear of the building. No access to auger for foundation depth is possible for this building without concrete removal.

Terra Nova Restoration Corp., 11-33 Irving Ave (Block 3725 Lot 42)

The structure at 11-33 Irving Avenue is a 1-story building approximately 25 ft x 152ft. The roof system is wood framed with brick walls and a concrete slab on grade floor. The floor is raised above the sidewalk level by 6 inches and provides shielding from the soil below. The building shares a common wall to the northwest with Primo Auto Repair (Lot 42). There is a 5 ft long

walkway along the front half of the southeast wall that separates this building from the adjacent Warehouse (Lot 33).

The wall to the adjacent Primo Auto Repair (Lot 42) shares a common wall with this building. This building has pipe columns within the space along the long walls and steel wide flange beams supporting the roof joists. This indicates that individual footings may be cast below the columns and that the brick walls may not be load bearing. The brick walls likely provide lateral support for the structure. The end of the building (northeast wall) appears to be brick and is stucco covered.

Ceilings and wall coverings covered the structural system so no additional observations of the structural system could be made. Exterior access along the 5' walkway adjacent to the Warehouse (Lot 33) was inaccessible due to the area being barricaded, overgrown with vegetation and covered with snow. The foundation system is covered by the new floor slab installed in 2013. No footing information could be observed from inside the building. Adjacent buildings obscured any observations of the existing footings from the outside and the concrete sidewalk covered the grade in the front and rear of the building. No access to auger for foundation depth is possible for this building without concrete removal.

Warehouse, 11-33 to 11-99 Irving Ave (Block 3725 Lot 33)

The warehouse structure is a 1-story steel framed building with a triangular footprint. Frontage (Irving Ave.) dimension is approximately 150 ft by 150 ft deep to the north corner with the back-wall curving along former rail spur (Lot 31) approximately 225 ft. The superstructure is steel wide flange columns and masonry pilasters with steel wide flange roof framing and an unknown roof system. Exterior walls are CMU with some exterior brick façade. The floor is cast in place concrete and appeared to be original to the structure. The foundation system for this building was not visible from the interior. The rear of the building along the former rail spur (Lot 31) was accessed and a hand-held auger was used to core the soil along the exterior wall. Auger refusal occurred at 24 inches below grade and this appears to be the top of the concrete foundation for this building. The spoils from the core were placed back in the hole and the grade was re-covered with snow.



5.0 Conclusion

The ability to over-excavate additional soils within the structures depends on the size, location and depth of the structural foundations that support the building superstructure. Available building drawings were reviewed but none indicated original construction information nor any information on the existing foundations. Visual inspection of the subject buildings and the adjacent buildings were not able to identify the foundation systems, their size or elevations as all were buried beneath grade and inaccessible.

Mr. Thomas Mongelli
March 8, 2017
Page 5

Foundation depth is currently required by the Building Code to be 48" below grade but this requirement may or may not have been in force when these buildings were constructed. Over-excavation of the existing soils below the building concrete slabs on grade is feasible as long as the excavation does not undermine the existing footings. Excavation to the bottom of the footing elevation is an available option but further testing would be needed to determine this elevation.

It appears that a reasonable assumption for FS alternative development is that depth of footing is 24 to 30 inches below grade as the adjacent Warehouse building occurs at that elevation. Any remedy that includes soil excavation to provide additional shielding to reduce the radiation exposure to building occupants will need footing size and elevations verified. This can be accomplished during pre-remedial design activities by coring/selective excavation or ground penetrating radar.

cc: Joel Singerman, EPA
Tony Isolda, CDM Smith
Paul Blomberg, CDM Smith
Jeanne Litwin, CDM Smith
Kavitha Subramaniam, CDM Smith
Document Control

SITE MAP: *Boundary of former WACC Operations*



A decorative graphic on the left side of the page. It consists of a vertical blue line and a horizontal blue line that intersect. The intersection point is at the bottom left. A square with a blue-to-white gradient is located in the bottom left corner, with its top-right corner at the intersection of the lines.

Appendix D

Appendix D

Building Demolition Material Calculations

	PROJECT:	Wolff-Alport CC Superfund Site	COMPUTED BY :	KK	CHECKED BY:	MS
	JOB NO.:	226078-6460.F3001.002.DES95	DATE :	4/27/2018	DATE CHECKED:	7/12/2018
	CLIENT:	USACE - KC				

Description:
The measurements which were input into the dimensional / volumetric calculations below are based on the site survey. The determination of radiological waste was based on chip samples and gamma readings collected during the 2015 Remedial Investigation completed by CDM Smith. Walls are categorized based on the highest possible contaminated point on a wall except for walls on Lot 33.

Contamination Assumptions:
Walls are assumed to be radioactive if high gamma readings were detected during the remedial investigation and the gamma readings. Gamma readings within the range of background or twice background were not assumed to be contaminated.
Despite elevated gamma counts in a small area of the ceiling on Lot 44, ceilings and the roof were not assumed to be contaminated as the majority of gamma readings were within the range of background. Additionally, the ceiling and roof is not in contact with radioactive materials.
Areas of contamination with concentrations above 50 pCi/g were delineated based on the gamma scan results from the remedial investigation. For constructability, the assumption is made that the entire vertical portion of the wall in the area of an elevated gamma reading will be disposed of at a landfill accepting waste with concentrations greater than 50 pCi/g.

Building information from 2017 Structural Inspection:
Lot 33 is a one-story building with steel wide flange structural system, masonry pilaster walls, and some brick exterior façade.
Lot 42 is a one-story building split in two by a center wall to house two occupants. It's structural support system is pipe columns within the walls and steel wide flange beams supporting roof joists. All walls are constructed of bricks with the rear-wall covered in stucco. The roof is wood-framed.
Lot 44 is a one-story building with an unknown structural system. Three walls are constructed of brick and the rear wall is constructed of CMU. It has a shared wall with Lot 42.
Lot 46 is a two-story building with a full basement. It is wood-framed with a basement constructed of brick foundation walls. The walls are brick and stucco-covered brick.
Lot 48 is a one-story building with an unknown structural system. The walls are constructed of brick.

Building information assumptions:
All building roofing material is assumed to be plywood subroofing with a tar membrane.
Roof system on Lot 33 is assumed to be supported by steel joists. Roof system on Lots 42, 44, 46, and 48 are assumed be supported by wood joists.
All roof tar membrane contains asbestos and will be disposed of as ACM. Assumes plywood and tar membrane would be disposed of together as ACM instead of trying to separate the two materials.
Height of walls includes parapets. Wall thicknesses are based on general construction knowledge. Wall material tonnage is estimated based on approximate volumes of each component shown in table below calculations.
Glass in windows is assumed to be 1/8-inch thick.
Where walls contain doors and windows, the surface area of the doors and windows were subtracted from the surface area of the wall determined by length and height.
Structural steel, scrap metal (roll up doors), and windows on assumed radioactive walls are not assumed to be radioactive.

Building material percentage assumptions are as follows:

Building Walls	Wall Materials Percentages			
	Brick	CMU/Masonry	Steel	Wood
Lot 42	90%	--	10%	--
Lot 44	90%	--	--	10%
Lot 44 rear wall	--	90%	--	10%
Lot 46	90%	--	--	10%
Lot 48	100%	--	--	--
Lot 33	20%	70%	10%	--

Material densities used for estimate are as follows:

Roof Joist Material	Joist Width (IN)	Joist Depth (IN)	Unit Weight (LBS/LF)
Steel Joist	6	24	20
2x10 Kiln Dried Wood Joist	1.50	9.25	3.4

Assume middle of road parallel cord steel joist
Assumed additional hardware would add 0.1 lbs/lf

Material	Density (lb/ft³)	Density (ton/CY)
CMU	120	1.62
Brick	112	1.51
Concrete	150	2.03
Steel	610	8.24
Wood	60	0.81
Plywood	29	0.39
Asphalt /tar roofing	108.1	1.46
Glass, window	157	2.12

Material	Thickness (IN)	Density (lb/ft²)	Density (lb/ft3)	Density (ton/SY)	Density (ton/CY)
Sheet steel (22-ga)	0.0299	1.25	502	0.006	18.59
Caulking			59.84		2.22
Thermal insulation board			2.5		0.09
Panel board backing paper			40		1.48
ACM electrical panels			70		2.59
ACM electrical insulation			3		0.11
ACM surfacing materials			40		1.48

References
Cement Block Walls: Beall, Christine; Jaffe, Rochelle (2003). Concrete and Masonry Databook. McGraw-Hill.
Brick: Worell, W.A., Vesilind, P.A., and Ludwig, C. (2017). Solid Waste Engineering: A Global Perspective, 3rd Edition
Concrete: Avallone, Eugene A. Mark's Standard Handbook for Mechanical Engineers, 11th Edition
Steel and timber: Ahmend and Sturges (2015). Materials Science in Construction.
Timber density is the median of the density range provided.
Plywood: Worell, W.A., Vesilind, P.A., and Ludwig, C. (2017). Solid Waste Engineering: A Global Perspective, 3rd Edition
Asphalt/tar roofing: Worell, W.A., Vesilind, P.A., and Ludwig, C. (2017). Solid Waste Engineering: A Global Perspective, 3rd Edition
Glass, window: Worell, W.A., Vesilind, P.A., and Ludwig, C. (2017). Solid Waste Engineering: A Global Perspective, 3rd Edition
Sheet steel: Engineering Toolbox Gauge and Weight Chart.
Density for caulking, thermal insulation board, panel backing paper, and ACM electrical panels, electrical insulation, and surfacing materials per engineer.

	PROJECT:	Wolff-Alport CC Superfund Site	COMPUTED BY :	KK	CHECKED BY:	MS
	JOB NO.:	226078-6460.F3001.002.DES95	DATE :	4/27/2018	DATE CHECKED:	7/12/2018
	CLIENT:	USACE - KC				

Lot	Roof Dimensions and Assumptions					Volume and Mass of Roofing Materials			
	Roof Area (SF)	Plywood Thick. (IN)	Tar Memb. Thick. (IN)	Plywood Volume (CY)	Tar Memb. Volume (CY)	Plyood (CY)	Plywood (TN)	Tar Memb. (CY)	Tar Memb.** (TN)
Lot 33*	13,400	1	1	41	41	41	16	41	60
Lot 42	7,800	1	1	24	24	24	10	24	36
Lot 44	2,500	1	1	8	8	8	4	8	12
Lot 46	2,500	1	1	8	8	8	4	8	12
Lot 48	1,090	1	1	3	3	3	2	3	5
Total quantity of roof system materials						84	36	84	125

**All tar membrane contains asbestos and will be disposed of as ACM. Assumes plywood and tar membrane would be disposed of together as ACM instead of trying to separate the two materials.

*Irregularly Shaped Building

Lot	Material Dimensions and Assumptions				Volume and Mass	
	Length (FT)	Width (IN)	Surface Area (SF)	General ACM Thick. (IN)	Volume (CY)	General ACM (TN)
Lot 33 - Tar on cinderblock wall			4,000	1	12	17.60
- Abandoned panel board backing paper			12	0.13	0.01	0.02
- Tar on front edge trim below roof			100	1	0.31	0.46
- Assumed ACM electrical panels			26	2	0.17	0.45
- Assumed ACM electrical wire insulation			1,500	0.13	0.61	0.07
- Flashing on roof fans/gooseneck flashing			40	1	0.13	0.00
Lot 42 - Roof flashing/parapet wall tar/flashing			1,720	1	5.31	0.01
- Coping stone tar			150	1	0.47	0.69
- Vent stack tar/flashing			40	1	0.13	0.00
Lot 44 - Roof flashing/parapet wall tar/flashing			500	1	1.55	2.27
- Vent stack tar/flashing			10	1	0.04	0.06
- Tar on beams			20	1	0.07	0.11
Lot 46 - Tar/Paint on gate			30	1	0.10	0.15
- Roof flashing/parapet wall tar/flashing			520	1	1.61	2.36
- Tar on beams			40	1	0.13	0.19
- Assumed asbestos-containing window caulking materials	12	0.5	0.5	0.5	0.01	0.03
- Assumed asbestos-containing surfacing materials throughout interior			3,000	0.5	4.63	6.86
- Assumed asbestos-containing thermal insulation materials throughout interior	120	0.5	5.0	0.5	0.01	0.01
- Assumed asbestos-containing miscellaneous materials throughout interior			2,000	0.5	3.09	4.58
Lot 48 - Roof flashing			40	1	0.13	0.00
- Tar on walls			10	1	0.04	0.06
- Tar/Purple paint on wall			320	1	0.99	1.45
- Parapet wall tar/roof flashing			520	1	1.61	2.36
- Coping stone tar			10	1	0.04	0.06
- Vent stack tar/flashing			10	1	0.04	0.06
					40	

Rounded up to nearest whole number

Lot	Apporx. Length (FT)	Approx. Width (FT)	Assumed Joist Spacing (FT)	No. of Joists (EA)	Volume and Mass of Roofing Support Materials				
					Steel (SF)	Steel (CY)	Steel (TN)	Wood (CY)	Wood (TN)
Lot 33*	154	80	2	77	16,427	228	62	0	0
Lot 42A	100	22	1	100	0	0	0	8	4
Lot 42B	55	25	1	55	0	0	0	5	3
Lot 44	100	25	1	100	0	0	0	9	5
Lot 46	100	25	1	100	0	0	0	9	5
Lot 48A	34	30	1	34	0	0	0	4	2
Lot 48B	15	15	1	15	0	0	0	1	1
Total quantity of roof system materials					16,427	228	62	36	20

*Irregularly Shaped Building - used length to determine number of joists. Used mean width to approximate total joist length.

Assumes a 24-inch deep parallel cord steel joist. Surface area is assumed to equal total joist length times 2 times width

Assumes 2x10 wood joist

Assumes 2x10 wood joist

Assumes 2x10 wood joist

Assumes 2x10 wood joist

Assumes 2x10 wood joist

Assumes 2x10 wood joist

<div>CDM Smith</div>	PROJECT: Wolff-Alport CC Superfund Site		COMPUTED BY: KK		CHECKED BY: MS	
	JOB NO.: 226078-6460.F3001.002.DES95		DATE: 4/27/2018		DATE CHECKED: 7/12/2018	
	CLIENT: USACE - KC					

Wall Categories	Wall Dimensions						Volume and Mass of Building Materials by Type															
	Length (FT)	Height (FT)	Surface Area (SF)	Thickness (IN)	Volume (CF)	Volume (CY)	Brick (CY)	Brick (TN)	Concrete Masonry Unit/Masonr y Pilaster (CY)	Concrete Masonry Unit/Masonry Pilaster (TN)	Steel (SF)	Steel (CY)	Steel (TN)	Scrap Metal (SF)	Scrap Metal (CY)	Scrap Metal (TN)	Wood (CY)	Wood (TN)	Glass (CY)	Glass (TN)		
Radioactive Walls																						
Areas with concentrations less than 50 pCi/g but greater than background																						
Lot 33-1 (A) - lower potentially contaminated area	89	3	290	8	194	8	8	3	8	10			See below.			--	-	--	-	--		
Lot 33-1 (B) - middle potentially contaminated area	30	3	98	8	66	3	3	1	3	4						--	-	--	-	--		
Lot 33-1 (B) - lower potentially contaminated area	53	3	173	8	116	5	5	2	5	6						--	-	--	-	--		
Lot 42-1 (A)	161	14	1,554	8	1,036	39	39	54	-	--			See information below in nonradioac tive section.			--	-	--	-	--		
Lot 42-1 (B)	30	14	420	8	280	11	11	15	-	--						--	-	--	-	--		
Lot 42-1 (C)	150	14	1,932	8	1,288	48	48	66	-	--						--	-	--	-	--		
Lot 42-1 (D) (for doors, see below)	22	14	69	8	46	2	2	3	-	--						--	-	--	-	--		
Lot 42-2 (A)	173	14	1,260	8	840	32	32	44	-	--						--	-	--	-	--		
Lot 42-2 (B)	25	14	329	8	220	9	9	13	-	--						--	-	--	-	--		
Lot 42-2 (C)	shared wall						-	-										-	-			
Lot 42-2 (D) (for doors, see below)	23	14	125	8	84	4	4	6	-	--			See below.			--	-	--	-	--		
Lot 42-2 (E)	14	14	0	8	0	0	0	0	-	--						--	-	--	-	--		
Lot 44 (A)	100	14	1,302	8	868	33	33	45	-	--			--			--	33	2.68	-	--		
Lot 44 (B)	25	14	210	8	140	6	-	--	6	9			--			--	6	0.49	-	--		
Lot 44 (C)	shared wall						-	-										-	-			
Lot 44 (D) (for doors, see below)	26	14	263	8	176	7	7	10	-	--			--			--	7	0.57	-	--		
Subtotal for radioactive materials less than 50 pCi/g								207	201	262	22	29		--	--	--	--	46	3.74	--	--	
Areas with concentrations greater than 50 pCi/g																						
Note: Lot 42-1 (A) and Lot 42-2 (C) is a shared wall. Lot 42-2 (A) and Lot 44 (C) is a shared wall. The area used to calculate volume of material containing radionuclides over 50 pCi/g was overlaid.																						
Lot 42-1 (A) & Lot 42-2 (C)	50	14	700	8	467	18	18	25	-	--			See information below in nonradioac tive section.			--	-	--	-	--		
Lot 42-1 (C)	12	14	168	8	112	5	5	7	-	--						--	-	--	-	--		
Lot 42-1 (D)	7	14	98	8	66	3	3	5	-	--						--	-	--	-	--		
Lot 42-2 (A) & Lot 44 (C)	83	14	1,162	8	775	29	29	40	-	--						--	-	--	-	--		
Lot 42-2 (D)	4	14	56	8	38	2	2	3	-	--						--	-	--	-	--		
Lot 42-2 (E)	14	14	196	8	131	5	5	7	-	--						--	-	--	-	--		
Lot 44 (A)	7	14	98	8	66	3	3	5	-	--			--			--	3	0.25	-	--		
Lot 44 (B)	10	14	140	8	94	4	-	--	4	6			--			--	4	0.33	-	--		
Subtotal for radioactive materials greater than 50 pCi/g								69	65	92	4	6		--	--	--	7.00	0.58	--	--		

Wall Categories	Wall Dimensions						Mass of Building Materials by Type														
	Length (FT)	Height (FT)	Surface Area (SF)	Thickness (IN)	Volume (CF)	Volume (CY)	Brick (CY)	Brick (TN)	Concrete Masonry Unit/Masonr y Pilaster (CY)	Concrete Masonry Unit/Masonry Pilaster (TN)	Steel (SF)	Steel (CY)	Steel (TN)	Scrap metal (SF)	Scrap metal (CY)	Scrap metal (TN)	Wood (CY)	Wood (TN)	Glass (CY)	Glass (TN)	
Not radioactive materials located on radioactive walls																					
Structural steel									-												
Lot 33-1 (A) - lower potentially contaminated area	See wall information above radioactive materials.						-	See building materials information below radioactive materials.				290	8	7	-	-	See building materials information below radioactive materials.				
Lot 33-1 (B) - middle potentially contaminated area							-					98	3	3	-	-					
Lot 33-1 (B) - lower potentially contaminated area							-					173	5	5	-	-					
Lot 42-1 (A)							-					1,554	39	47	-	-					
Lot 42-1 (B)							-					420	11	10	-	-					
Lot 42-1 (C)							-					1,932	48	44	-	-					
Lot 42-1 (D) (for doors, see below)							-					69	2	5	-	-					
Lot 42-2 (A)							-					1,260	32	51	-	-					
Lot 42-2 (B)							-					329	9	8	-	-					
Lot 42-2 (D)							-					0	0	5	-	-					
Lot 42-2 (E)							-					125	4	5	-	-					
Doors							-					-	-		-	-					
Lot 42-1 (D) - Roll-up door	10	12	120	--	--	--	-	--	-	--	-	-	--	120	0.130	0.080	-	--	-	--	
Lot 42-1 (D) - Door (smaller roll up)	3	7	21	1.75	3.063	0.114	-	--	-	--	-	-	--	21	0.114	0.014	0.114	0.093	-	--	
Lot 42-2 (B) - Door	3	7	21	1.75	3.063	0.114	-	--	-	--	-	-	--	-	-	--	0.114	0.093	-	--	
Lot 42-2 (D) - Roll-up door	10	12	120	--	--	--	-	--	-	--	-	-	--	120	0.130	0.080	-	--	-	--	
Lot 42-2 (D) - Door (smaller roll up)	3	7	21	1.75	3.063	0.114	-	--	-	--	-	-	--	21	0.114	0.014	0.114	0.093	-	--	
Lot 44 (D) - Roll-up door	10	8	80	--	--	--	-	--	-	--	-	-	--	80	0.090	0.054	-	--	-	--	
Lot 44 (D) - Door	3	7	21	1.75	3.063	0.114	-	--	-	--	-	-	--	-	-	--	0.114	0.093	-	--	
Subtotal for Not Radioactive Materials Located on Radioactive Walls								0	0	0	0	6,250	161	190	362	0.578	0.242	0.456	0.372	0.000	0.000

Appendix D
Building Demolition Material Calculations
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

<div>CDM Smith</div>	PROJECT:	Wolff-Alport CC Superfund Site						COMPUTED BY:	KK		CHECKED BY:	MS	
	JOB NO.:	226078-6460.F3001.002.DES95						DATE:	4/27/2018		DATE CHECKED:	7/12/2018	
	CLIENT:	USACE - KC											

Wall Categories	Wall Dimensions							Mass of Building Materials by Type												
	Length (FT)	Height (FT)	Surface Area (SF)	Thickness (IN)	Volume (CF)	Volume (CY)	Brick (CY)	Brick (TN)	Concrete Masonry Unit/Masonr y Pilaster (CY)	Concrete Masonry Unit/Masonry Pilaster (TN)	Steel (SF)	Steel (CY)	Steel (TN)	Scrap metal (SF)	Scrap metal (CY)	Scrap metal (TN)	Wood (CY)	Wood (TN)	Glass (CY)	Glass (TN)
Not Radioactive Walls																				
Lot 33-1 (A) - upper uncontaminated area	153	14	1,852	8	1,235	46	46	14	46	53	1,852	46	38	-	-	--	-	--	-	--
Lot 33-1 (B) - upper uncontaminated area	112	14	1,297	8	865	33	33	10	33	38	1,297	33	28	-	-	--	-	--	-	--
Lot 33-1 (C)	60	14	840	8	560	21	21	7	21	24	840	21	18	-	-	--	-	--	-	--
Lot 33-1 (D)	28	14	392	8	262	10	10	4	10	12	392	10	9	-	-	--	-	--	-	--
Lot 33-1 (E)	21	14	294	8	196	8	8	3	8	10	294	8	7	-	-	--	-	--	-	--
Lot 33-1 (F)	51	14	240	8	160	6	6	2	6	7	240	6	5	-	-	--	-	--	-	--
Roll-up door	26	13	338	--	--	--	-	--	-	--	-	-	--	338	0.370	0.226	-	--	-	--
Door (smaller roll up)	3	7	21	1.75	4	0.149	-	--	-	--	-	-	--	21	0.020	0.014	0.149	0.121	-	--
Windows	23	5	115	0.13	1.246	0.047	-	--	-	--	-	-	--	-	-	--	-	--	0.047	0.100
Lot 33-2 (A)	shared wall						-		-		-	-		-	-		-		-	
Lot 33-2 (B)	shared wall						-		-		-	-		-	-		-		-	
Lot 33-2 (C)	21	14	294	8	196	8	8	3	8	10	294	8	7	-	-	--	-	--	-	--
Lot 33-2 (D)	28	14	252	8	168	7	7	3	7	8	252	7	6	-	-	--	-	--	-	--
Windows	28	5	140	0.13	2	0.075	-	--	-	--	-	-	--	-	-	--	-	--	0.075	0.159
Lot 33-3 (A)	shared wall						-		-		-	-		-	-		-		-	
Lot 33-3 (B)	32	14	448	8	299	12	12	4	12	14	448	12	10	-	-	--	-	--	-	--
Lot 33-3 (C)	60	14	840	8	560	21	21	7	21	24	840	21	18	-	-	--	-	--	-	--
Lot 33-3 (D)	25	14	147	8	98	4	4	2	4	5	147	4	4	-	-	--	-	--	-	--
Roll-up door	13	13	169	--	--	--	-	--	-	--	-	-	--	169	0.190	0.113	-	--	-	--
Door (smaller roll up)	3	7	21	1.75	4	0.149	-	--	-	--	-	-	--	21	0.020	0.014	0.149	0.121	-	--
Windows	3	5	13	0.13	0.141	0.006	-	--	-	--	-	-	--	-	-	--	-	--	0.006	0.013
Lot 33-4 (A)	shared wall						-		-		-	-		-	-		-		-	
Lot 33-4 (B)	59	14	826	8	551	21	21	7	21	24	826	21	18	-	-	--	-	--	-	--
Lot 33-4 (C)	19	14	259	8	173	7	7	3	7	8	259	7	6	-	-	--	-	--	-	--
Lot 33-4 (D)	41	14	418	8	279	11	11	4	11	13	418	11	10	-	-	--	-	--	-	--
Roll-up door	13	12	156	--	--	--	-	--	-	--	-	-	--	156	0.170	0.104	-	--	-	--
Subtotal for Lot 33 Not Radioactive Walls						215.5	215	73	215	250	8,399	215	184	705	0.770	0.471	0.298	0.242	0.128	0.272

Wall Categories	Wall Dimensions							Mass of Building Materials by Type												
	Length (FT)	Height (FT)	Surface Area (SF)	Thickness (IN)	Volume (CF)	Volume (CY)	Brick (CY)	Brick (TN)	Concrete Masonry Unit/Masonr y Pilaster (CY)	Concrete Masonry Unit/Masonry Pilaster (TN)	Steel (SF)	Steel (CY)	Steel (TN)	Scrap metal (SF)	Scrap metal (CY)	Scrap metal (TN)	Wood (CY)	Wood (TN)	Glass (CY)	Glass (TN)
Not Radioactive Walls																				
Lot 46-1 - first floor (A) (includes portion of aboveground basement wall)	27	11	89	8	60	3	3	5	-	--	-	-	--	-	-	--	3	0.243	-	--
Roll-up door 1	10	8	80	--	--	--	-	--	-	--	-	-	--	80	0.090	0.054	-	--	-	--
Roll-up door 2 (over windows)	16	8	128	--	--	--	-	--	-	--	-	-	--	128	0.140	0.086	-	--	-	--
Windows	16	8	128	0.13	1.387	0.052	-	--	-	--	-	-	--	-	-	--	-	--	0	0.111
Lot 46-1 - first floor (B) (includes portion of aboveground basement wall)	57	11	414	8	276	11	11	15	-	--	-	-	--	-	-	--	11	0.891	-	--
Roll-up door	12	8	96	--	--	--	-	--	-	--	-	-	--	96	0.110	0.064	-	--	-	--
Door	3	7	21	1.75	3.063	0.114	-	--	-	--	-	-	--	-	-	--	0	0.010	-	--
Windows (store)	12	8	96	0.13	1.040	0.039	-	--	-	--	-	-	--	-	-	--	-	--	0.039	0.083
Lot 46-1 - first floor (C) (includes portion of aboveground basement wall)	27	11	297	8	198	8	8	11	-	--	-	-	--	-	-	--	8	0.648	-	--
Lot 46-1 - first floor (D) (includes portion of aboveground basement wall)	shared wall						-		-		-	-		-	-		-		-	
Lot 46-1 - second floor (A)	27	11	297	8	198	8	8	11	-	--	-	-	--	-	-	--	8	0.648	-	--
Lot 46-1 - second floor (B)	57	11	616	8	411	16	16	22	-	--	-	-	--	-	-	--	16	1.296	-	--
Windows (second floor apartment, 3 windows)	2.5	4	11	0.13	0.358	0.0140	-	--	-	--	-	-	--	-	-	--	-	--	0.014	0.030
Lot 46-1 - second floor (C)	27	11	297	8	198	8	8	11	-	--	-	-	--	-	-	--	8	0.648	-	--
Lot 46-1 - second floor (D)	57	11	627	8	418	16	16	22	-	--	-	-	--	-	-	--	16	1.296	-	--

<div>CDM Smith</div>	PROJECT: Wolff-Alport CC Superfund Site			COMPUTED BY: KK			CHECKED BY: MS		
	JOB NO.: 226078-6460.F3001.002.DES95			DATE: 4/27/2018			DATE CHECKED: 7/12/2018		
	CLIENT: USACE - KC								

Lot 46-2 (A)	42	11	237	8	158	6	6	9	-	--	-	-	--	-	-	--	6	0.486	-	--
Roll-up door (1)	9	9	81	--	--	--	-	--	-	--	-	-	--	81	0.090	0.054	-	--	-	--
Door (half glass)	3	7	12	1.75	2	0.075	-	--	-	--	-	-	--	-	-	--	0	0.007	-	--
Glass	2.5	4	9	0.13	0.098	0.004	-	--	-	--	-	-	--	-	-	--	-	--	0.004	0.009
Roll-up door (2)	9	8	72	--	--	--	-	--	-	--	-	-	--	72	0.080	0.048	-	--	-	--
Door (half glass)	3	7	12	1.75	2	0.075	-	--	-	--	-	-	--	-	-	--	0	0.007	-	--
Glass	2.5	4	9	0.13	0.098	0.004	-	--	-	--	-	-	--	-	-	--	-	--	0.004	0.009
Door (half glass)	3	7	12	1.75	2	0.075	-	--	-	--	-	-	--	-	-	--	0	0.007	-	--
Glass	2.5	4	9	0.13	0.098	0.004	-	--	-	--	-	-	--	-	-	--	-	--	0.004	0.009
Door (half glass)	3	7	12	1.75	2	0.075	-	--	-	--	-	-	--	-	-	--	0	0.007	-	--
Glass	2.5	4	9	0.13	0.098	0.004	-	--	-	--	-	-	--	-	-	--	-	--	0.004	0.009
Roll-up door (3)	9	8	72	--	--	--	-	--	-	--	-	-	--	72	0.080	0.048	-	--	-	--
Door	3	7	21	1.75	4	0.149	-	--	-	--	-	-	--	-	-	--	0	0.013	-	--
Window	6	7	42	0.13	0.455	0.017	-	--	-	--	-	-	--	-	-	--	-	--	0.017	0.037
Lot 46-2 (B)	27	11	297	8	198	8	8	11	-	--	-	-	--	-	-	--	8	0.648	-	--
Lot 46-2 (C)	shared wall						-		-		-	-		-	-		-		-	
Lot 46-2 (D)	shared wall						-		-		-	-		-	-		-		-	
Subtotal for Lot 46 Not Radioactive Walls						84.8	84	117	0	0	0	0	0	529	0.590	0.354	84.563	6.855	0.138	0.297

Wall Categories	Wall Dimensions							Mass of Building Materials by Type												
	Length (FT)	Height (FT)	Surface Area (SF)	Thickness (IN)	Volume (CF)	Volume (CY)	Brick (CY)	Brick (TN)	Concrete Masonry Unit/Masonry Pilaster (CY)	Concrete Masonry Unit/Masonry Pilaster (TN)	Steel (SF)	Steel (CY)	Steel (TN)	Scrap metal (SF)	Scrap metal (CY)	Scrap metal (TN)	Wood (CY)	Wood (TN)	Glass (CY)	Glass (TN)
Not Radioactive Walls																				
Lot 48-1 (A)	34	14	122	8	82	4	4	7	-	--	-	-	--	-	-	--	-	--	-	--
Garage door	18	13	234	--	--	--	-	--	-	--	-	-	--	234	0.260	0.156	-	--	-	--
Garage door	10	12	120	--	--	--	-	--	-	--	-	-	--	120	0.130	0.080	-	--	-	--
Lot 48-1 (B)	28	14	392	8	262	10	10	16	-	--	-	-	--	-	-	--	-	--	-	--
Lot 48-1 (C)	33	14	462	8	308	12	12	19	-	--	-	-	--	-	-	--	-	--	-	--
Lot 48-1 (D)	78	14	1,092	8	728	27	27	41	-	--	-	-	--	-	-	--	-	--	-	--
Lot 48-2 (A)	16	12	161	8	108	4	4	7	-	--	-	-	--	-	-	--	-	--	-	--
Door	3	7	21	1.75	4	0.149	-	--	-	--	-	-	--	-	-	--	0.149	0.121	-	--
Windows (2)	3	3	10	0.13	1.000	0.038	-	--	-	--	-	-	--	-	-	--	-	--	0.038	0.081
Lot 48-2 (B)	14	12	168	8	112	5	5	8	-	--	-	-	--	-	-	--	-	--	-	--
Lot 48-2 (C)	15	12	180	8	120	5	5	8	-	--	-	-	--	-	-	--	-	--	-	--
Lot 48-2 (D)	shared wall						-		-		-	-		-	-		-		-	
Lot 48-2 (E)	15	12	180	8	120	5	5	8	-	--	-	-	--	-	-	--	-	--	-	--
Subtotal for Lot 48 Not Radioactive Walls						72.2	72	114	0	0	0	0	0	354	0.390	0.236	0.149	0.121	0.038	0.081

Not Radioactive Walls Totals						373	287	304	215	250	14,649	376	374	1,950	2.328	1.303	85.466	7.590	0.304	0.650
------------------------------	--	--	--	--	--	-----	-----	-----	-----	-----	--------	-----	-----	-------	-------	-------	--------	-------	-------	-------

Summary of Volumes (rounded to the nearest whole number)
--

Hazardous Building Materials

ACM (TN):	201
Mercury-containing lamps, 2 ft (each):	42
Mercury-containing lamps, 4 ft (each):	192
Mercury-containing thermostats (each):	4

Building Demolition Debris

Note: Salvageable material includes steel and scrap metal.

		<u>CY</u>	<u>TON</u>
Radioactive Material, less than 50 pCi/g:		893	877
Radioactive Material, greater than 50 pCi/g:		76	99
Non-Porous (Salvageable) Material:	33,026	606	437
		1,575	1,413

Appendix E

Appendix E

Backfill Volume Calculation

Appendix E
Backfill Volume Calculation
Wolff-Alport Chemical Company Site
Ridgewood, Queens, New York

CDM Smith	PROJECT: <u>Wolff-Alport</u>	COMPUTED BY: <u>KK</u>	CHECKED BY: <u>MS</u>
	JOB NO.: <u>W912DQ18F3001</u>	DATE: <u>4/27/2018</u>	DATE CHECKED: <u>6/11/2018</u>
	CLIENT: <u>USACE</u>		

Description:
Determine the volume of backfill needed.

Assumptions:

- Basement height is from the basement floor to ground surface.
- The areas of exposed soil will be covered with 6 inches of crushed stone.
- The entire rail spur area will require backfill after demolition, segregation and transportation and disposal activities are completed.
- Sump hole dimensions are based on the upper range of typical sump construction dimensions.

Sump hole diameter and depth, IN: 30

Category of Backfill Area	Area			Depth (feet)	Volume	
	Length (feet)	Width (feet)	Area (feet ²)		(feet ³)	(CY)
Basement of Lot 46	62	26	1612	5	8,060	299
Gravel Cover over Geomembrane	62	26	1612	0.5	806	30
Area between Lot 33 and Lot 42 buildings	130	4.4	572	0.5	286	11
Sump in Lot 46	5			2.5	12.5	0.5
Sump in Lot 33	5			2.5	12.5	0.5
Backfill in rail spur area*	13,500			0.5	6,750	250
					Total	591

* Area of rail spur from AutoCAD measurement.

Appendix F

Appendix F

Permit Applications

NYCDEP-Asbestos

NYCDEP Water and Sewer

NYCDOB-Forms

NYCDOT

NYCDEP-Asbestos

**New York City Department of Environmental Protection
Bureau of Environmental Compliance**

Asbestos Control Program

Asbestos Rules and Regulations

Title 15, Chapter 1 of the Rules of the City of New York

Revised: 02/03/2011

Chapter 1

Asbestos Control Program

Subchapter	A	Scope, Application, Definitions and Variances
	B	Certification Provisions
	C	Notifications, Permitting and Recordkeeping
	D	Air and Bulk Sampling, Monitoring and Analysis
	E	Personnel Protection and Equipment Specifications
	F	Asbestos Project Procedures
	G	Pre-Demolition Abatement Activity Procedures

Subchapter A

Scope, Application, Definitions and Variances

§ 1-01 Scope and Application

§ 1-02 Definitions

§ 1-03 Variances

§ 1-01 Scope and Application. (a) The following asbestos control program rules, § 1-01 et seq., shall apply to all asbestos abatement activities occurring within the City of New York.

(b) Every owner of a building where asbestos abatement activity occurs shall be responsible for the performance of the asbestos abatement activities by his/her agent, contractor, employee, or other representative.

(c) Every contractor and worker engaged in asbestos abatement activities shall comply with the provisions of this chapter except as otherwise specified.

(d) Every investigator engaged to identify the presence and evaluate the condition of asbestos in a building or structure shall comply with the provisions of this chapter except as otherwise specified.

(e) No person shall knowingly make a false statement or submit a false document to the Department as to any matter concerning an asbestos project or any document required to be filed under these rules.

(f) The department may inspect at a reasonable time and in a reasonable manner anything which affects or may affect the emission or release of asbestos fibers or the disturbance of asbestos-containing material, including but not limited to the premises where an asbestos project is being conducted, or the premises for which a notification has been filed under § 1-21 – § 1-26 of these Rules, or the premises where an application has been filed with the Department of Buildings for a plan or permit approval.

(g) No person shall interfere with or obstruct any employee of the Department in the performance of their official duties, including but not limited to the performance of inspections.

(h) No person who holds a certificate issued pursuant to these rules shall engage in unprofessional conduct. Unprofessional conduct shall include but is not limited to:

- (1) Failure to comply with provisions of Federal, State or local laws, rules, or regulations.
- (2) Conduct in asbestos inspections, assessment, abatement activities, air sampling, etc. which evidences moral unfitness.
- (3) Making or filing a false report, or failing to file a report required by these rules or impeding or obstructing such filing, or inducing another person to do so.

(i) The size (amount of material to be disturbed or, in the case of cleanups, the dimensions of the area to be cleaned) and scope of the overall project shall control the notification to be filed and work procedures to be followed. The requirements set forth in these rules may not be avoided or lessened through the performance of work in increments or piecemeal fashion.

(j) (1) Any person, including but not limited to contractors, building owners, and air monitoring companies, who is in violation of or fails to comply with any provision of these rules or the terms and conditions of any variance issued pursuant to these rules shall be subject to the issuance of notice(s) of violation and other civil and criminal enforcement actions pursuant to Title 24, Chapter 1, Subchapter 9 of the Administrative Code of the City of New York.

- (2) The maximum civil penalty for any violation of a lettered subsection of these rules, pursuant to a notice of violation returnable before the Environmental Control Board, shall be \$10,000, except that a violation of section 1-26 shall carry a maximum penalty of \$15,000.
- (3) DEP may deny any application for an asbestos abatement permit pursuant to section 1-26 of these rules, or a variance application pursuant to section 1-03 of these rules, where any party to the asbestos project, including but not limited to the abatement contractor, building owner, and air monitoring company, has docketed, unpaid civil penalties imposed by the Environmental Control Board for violations of these rules, sections 24-146.1 and 24-146.3 of the Administrative Code, or NYSDOL ICR 56.

§ 1-02 Definitions.

Abatement. “Abatement” shall mean any and all procedures physically taken to control fiber release from asbestos-containing materials. This includes removal, encapsulation, enclosure, cleanup and repair.

Abatement activities. “Abatement activities” shall mean all activities from the initiation of work area preparation through successful clearance air monitoring performed at the conclusion of an asbestos project or minor project.

Adequately wet. “Adequately wet” shall mean the complete penetration of a material with amended water to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then the material has not been adequately wetted. However, the

absence of visible emissions is not evidence of being adequately wet. ACM must be fully penetrated with the wetting agent in order to be considered adequately wet. If the ACM being abated is resistant to amended water penetration, wetting agent shall be applied to the material prior to and during removal as necessary to minimize fiber release.

Aggressive sampling. “Aggressive sampling” shall mean a method of sampling in which the individual collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.

AHERA. “AHERA” shall mean the Asbestos Hazard Emergency Response Act of 1986.

AIHA. “AIHA” shall mean the American Industrial Hygiene Association.

Airlock. “Airlock” shall mean a system for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

Air sampling. “Air sampling” shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Science and Technology which are utilized for lower detectability and specific fiber identification.

Ambient air monitoring. “Ambient air monitoring” shall mean measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the worksite.

Amended water. “Amended water” shall mean water to which a surfactant has been added.

ANSI. “ANSI” shall mean the American National Standards Institute.

Area air sampling. “Area air sampling” shall mean any form of air sampling or monitoring where the sampling device is placed at some stationary location.

Asbestos. “Asbestos” shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cummingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

Asbestos-containing material. “Asbestos-containing material” (ACM) shall mean asbestos or any material containing more than one percent asbestos.

Asbestos-containing waste material. “Asbestos-containing waste material” shall mean asbestos-containing material or asbestos-contaminated objects requiring disposal.

Asbestos-contaminated objects. “Asbestos-contaminated objects” shall mean any objects which have been contaminated by asbestos or asbestos-containing material.

Asbestos assessment report. “Asbestos assessment report” shall mean the “Form ACP-5” form, as approved by DEP, by which a DEP-certified asbestos investigator certifies that a building or structure (or portion thereof) is free of ACM or the amount of ACM to be abated constitutes a minor project.

Asbestos handler. “Asbestos handler” shall mean an individual certified by the Department who disturbs, removes, encapsulates, repairs, or encloses asbestos material.

Asbestos handler supervisor. “Asbestos handler supervisor” shall mean an individual certified by the Department who supervises the handlers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to.

Asbestos project notification. “Asbestos project notification” shall mean the “Form ACP-7” asbestos project notification form as approved by DEP.

Asbestos investigator. “Asbestos investigator” shall mean an individual certified by the Commissioner as having satisfactorily demonstrated his or her ability to identify the presence and evaluate the condition of asbestos in a building or structure.

Asbestos project. “Asbestos project” shall mean any form of work performed in a building or structure or in connection with the replacement or repair of equipment, pipes, or electrical equipment not located in a building or structure which will disturb (e.g., remove, enclose, encapsulate) more than 25 linear feet or more than 10 square feet of asbestos-containing material.

ASTM. “ASTM” shall mean the American Society For Testing and Materials.

Authorized visitor. “Authorized visitor” shall mean the building owner and his/her representative, and any representative of a regulatory or other agency having jurisdiction over the project.

Building owner. “Building owner” shall mean the person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance building owner means the person in whom beneficial title is vested.

Building materials. “Building materials” shall mean any and all materials listed as Presumed Asbestos Containing Materials (PACM) and Suspect Miscellaneous ACM in NYSDOL ICR 56, including but not limited to interior and exterior finishes, equipment, plaster, roofing, flooring, caulking, sealants, tiles, insulation, and mortar and refractory bricks used in the construction of boilers.

Certified industrial hygienist. “Certified industrial hygienist” (CIH) shall mean an individual who is currently certified by] the American Board of Industrial Hygiene.

Certified safety professional (CSP). “Certified safety professional” (CSP) shall mean an individual having a bachelor’s degree from an accredited college or university and a minimum of four years experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified by that Board.

Chain of custody. “Chain of custody” shall mean the form or set of forms that document the collection and transfer of a sample.

Clean room. “Clean room” shall mean an uncontaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of workers’ street clothes and protective equipment.

Clearance air monitoring. “Clearance air monitoring” shall mean the employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers, and shall be performed as the final abatement activity.

Commissioner. “Commissioner” shall mean the Commissioner of the New York City Department of Environmental Protection.

Contractor. “Contractor” shall mean a public authority or any other governmental agency or instrumentality thereof, self-employed person, company, unincorporated association, firm, partnership or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.

Curtained doorway. “Curtained doorway” shall mean a device which consists of at least three overlapping sheets of fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.

Decontamination enclosure system. “Decontamination enclosure system” shall mean a series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers, materials, waste containers, and equipment.

Demolition. “Demolition” shall mean the dismantling or razing of a building, including all operations incidental thereto (except for asbestos abatement activities), for which a demolition permit from the New York City Department of Buildings is required.

Department or DEP. “Department” or “DEP” shall mean the New York City Department of Environmental Protection.

Disturb. “Disturb” shall mean any action taken which may alter, change, or stir, such as but not limited to the removal, encapsulation, enclosure or repair of asbestos-containing material.

DOB. “DOB” shall mean the New York City Department of Buildings.

ELAP. “ELAP” shall mean the Environmental Laboratory Approval Program administered by the New York State Department of Health.

Encapsulant (sealant) or encapsulating agent. “Encapsulant (sealant) or encapsulating agent” shall mean liquid material which can be applied to asbestos-containing material which temporarily controls the possible release of asbestos fibers from the material or surface either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

Encapsulation. “Encapsulation” shall mean the coating or spraying of asbestos-containing material encapsulant. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

Enclosure. “Enclosure” shall mean the construction of airtight walls and ceilings between the ACM and the facility environment, or around surfaces coated with ACM, or any other appropriate procedure as determined by the Department which prevents the release of asbestos fibers.

EPA. “EPA” or “USEPA” shall mean the United States Environmental Protection Agency.

Equipment room. “Equipment room” shall mean a contaminated area or room which is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

Exit. “Exit” shall mean that portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction to provide a protected path of egress travel between the exit access and the exit discharge.

FDNY. “FDNY” shall mean the Fire Department of the City of New York.

Fiber. “Fiber” shall mean an acicular single crystal or a similarity elongated polycrystalline aggregate which displays some resemblance to organic fibers by having such properties as flexibility, high aspect ratio, silky luster, axial lineation, and others, and which has attained its shape primarily through growth rather than cleavage.

Fixed object. “Fixed object” shall mean a unit of equipment, furniture, or other item in the work area which cannot be removed from the work area. Fixed objects shall include equipment, furniture, or other items that are attached, in whole or in part, to a floor, ceiling, wall, or other building structure or system or to another fixed object and cannot be reasonably removed from the work area. Fixed objects shall also include pipes and other equipment inside the work area which are not the subject of the asbestos project. Active fire suppression system components shall not be considered fixed objects.

Glovebag technique. “Glovebag technique” shall mean a method for removing asbestos-containing material from heating, ventilation and air conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces. The glovebag assembly is a manufactured device consisting of a large bag (constructed of at least 6-mil transparent plastic), two inward-projecting long sleeve gloves, one inward-projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process.

HEPA filter. “HEPA filter” shall mean a high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.

HEPA vacuum equipment. “HEPA vacuum equipment” shall mean vacuuming equipment with a HEPA filter.

Holding area. “Holding area” shall mean a chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

Homogeneous work area. “Homogeneous work area” shall mean a portion of the work area which contains one type of asbestos-containing material and/or where one type of abatement is used.

Industrial hygiene. “Industrial hygiene” shall mean that science and art devoted to the recognition, evaluation and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among workers or among the citizens of the community.

Industrial hygienist. “Industrial hygienist” shall mean an individual having a college or university degree or degrees in engineering, chemistry, physics, or medicine or related biological sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene.

Isolation barrier. “Isolation barrier” shall mean the construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas and to contain asbestos fibers in the work area.

Large asbestos project. “Large asbestos project” shall mean an asbestos project involving the disturbance (e.g., removal, enclosure, encapsulation) of 260 linear feet or more of asbestos-containing material or 160 square feet or more of asbestos-containing material.

Log. “Log” shall mean an official record, maintained by the abatement contractor, of all activities that occurred during the project. At a minimum, the log shall identify the building owner, agent, contractor, and workers, and other pertinent information including daily activities, cleanings and waste transfers, names and certificate numbers of asbestos handler supervisors and asbestos handlers; results of inspections of decontamination systems, barriers, and negative pressure ventilation equipment; summary of corrective actions and repairs; work stoppages with reason for stoppage; manometer readings at least twice per work shift; daily checks of emergency and fire exits and any unusual events.

Means of egress. “Means of egress” shall mean a continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

Minor project. “Minor project” shall mean a project involving the disturbance (e.g. removal, enclosure, encapsulation, repair) of 25 linear feet or less of asbestos containing material or 10 square feet or less of asbestos containing material.

Movable object. “Movable object” shall mean a unit of equipment or furniture in the work area which can be removed from the work area.

Negative air pressure equipment. “Negative air pressure equipment” shall mean a portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the work area.

NFPA. “NFPA” shall mean the National Fire Protection Association.

NIOSH. “NIOSH” shall mean the National Institute for Occupational Safety and Health.

NYSDOL. “NYSDOL” shall mean the New York State Department of Labor.

NYSDOL ICR 56. “NYSDOL ICR 56” shall mean Part 56 of the Official Compilation of Codes, Rules and Regulations of the State of New York or 12 NYCRR Part 56.

NYSDOH. “NYSDOH” shall mean the New York State Department of Health.

Obstruction. “Obstruction” shall mean the blocking of a means of egress with any temporary structure or barrier. Polyethylene sheeting shall not be considered an obstruction when it is prominently marked with exit signage or paint and cutting tools (knife, razor) are attached to the work area side of the sheeting for use in the event that the sheeting must be cut to permit egress. A corridor shall not be considered obstructed when there is a clear path measuring at least three (3) feet wide.

Occupied Area. “Occupied area” shall mean an area of the worksite where abatement is not taking place and where personnel or occupants normally function or where workers are not required to use personal protective equipment.

OSHA. “OSHA” shall mean the United States Occupational Safety and Health Administration.

Outside air. “Outside air” shall mean the air outside the work place.

Person. “Person” means any individual, partnership, company, corporation, association, firm, organization, governmental agency, administration or department, or any other group of individuals, or any officer or employee thereof.

Personal air monitoring. “Personal air monitoring” shall mean a method used to determine employees’ exposure to airborne fibers. The sample is collected outside the respirator in the worker’s breathing zone.

Personal protective equipment. “Personal protective equipment” (PPE) shall mean appropriate protective clothing, gloves, eye protection, footwear, head gear.

Phase contrast microscopy. “Phase contrast microscopy” (PCM) shall mean the measurement protocol for the assessment of the fiber content of air. (NIOSH Method 7400).

Physician. “Physician” shall mean an individual licensed or otherwise authorized under Article 131 §65.22 of the New York State Education Law.

Plasticize. “Plasticize” shall mean to cover floors and walls with fire retardant plastic sheeting as herein specified or by using spray plastics as acceptable to the Department.

Polarized light microscopy. “Polarized light microscopy” (PLM) shall mean the measurement protocol for the assessment of the asbestos content of bulk materials. (Interim Method for the Determination of Asbestiform Materials in Bulk Insulation Samples- 40 CFR Part 763, Subpart F, Appendix A as amended on September 1, 1982)

Project designer. “Project designer” shall mean a person who holds a valid Project Designer Certificate issued by the New York State Department of Labor.

Project monitor. “Project monitor” shall mean a person who holds a valid Project Monitor Certificate issued by the New York State Department of Labor.

Qualitative fit test. “Qualitative fit test” shall mean the individual test subject’s responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator face piece. Acceptable methods include irritant smoke test, odorous vapor test, and taste test.

Quantitative fit test. “Quantitative fit test” shall mean exposing the respirator wearer to a test atmosphere containing an easily detectable, nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which samples the test atmosphere and the air inside the face piece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the tests.

Registered design professional. “Registered design professional” shall mean a person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York.

Removal. “Removal” shall mean the stripping of any asbestos-containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.

Renovation. “Renovation” shall mean an addition or alteration or change or modification of a building or the service equipment thereof, that is not classified as an ordinary repair as defined in §27-125 of the Administrative Code of the City of New York.

Repair. “Repair” shall mean corrective action using specified work practices e.g. glovebag, plastic tent procedures, etc. to minimize the likelihood of fiber release from minimally damaged areas of ACM.

Replacement material. “Replacement material” shall mean any material used to replace ACM that contains less than .01 percent asbestos.

Shift. “Shift” shall mean a worker’s, or simultaneous group of workers’, complete daily term of work.

Shower room. “Shower room” shall mean a room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.

Small asbestos project. “Small asbestos project” shall mean an asbestos project involving the disturbance (e.g., removal, enclosure, encapsulation) of more than 25 and less than 260 linear feet of asbestos-containing material or more than 10 and less than 160 square feet of asbestos-containing material.

Staging area. “Staging area” shall mean the work area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

Strip. “Strip” shall mean to remove asbestos materials from any part of the facility.

Structural member. “Structural member” shall mean any load-supporting member of a facility, such as beams and load-supporting walls, or any nonload-supporting member, such as ceiling and nonload-supporting walls.

Surface barriers. “Surface barriers” shall mean the plasticizing of walls, floors, and fixed objects within the work area to prevent contamination from subsequent work.

Surfactant. “Surfactant” shall mean a chemical wetting agent added to water to improve penetration.

Transmission electron microscopy (TEM). “Transmission electron microscopy (TEM)” shall mean the measurement protocol for the assessment of the asbestos fiber content of air. (Interim Transmission Electron Microscopy Analytical Methods-40 CFR Part 763, Subpart E, Appendix A)

Visible emissions. “Visible emissions” shall mean any emissions containing particulate material that are visually detectable without the aid of instruments.

Washroom. “Washroom” shall mean a room between the work area and the holding area in the equipment decontamination enclosure system where equipment and waste containers are wet cleaned and/or HEPA vacuumed prior to disposal.

Waste decontamination enclosure system. “Waste decontamination enclosure system” shall mean the decontamination enclosure system designated for the controlled transfer of materials and equipment, consisting of a washroom and a holding area.

Wet cleaning. “Wet cleaning” shall mean the removal of asbestos fibers from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water.

Wet methods. “Wet methods” shall mean the use of amended water or removal encapsulants to minimize the generation of fibers during ACM disturbance.

Work area. “Work area” shall mean designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take place. For glovebag procedures, the work area shall also include the areas contiguous to where the procedure takes place

Worker. “Worker” shall mean asbestos handler and/or asbestos handler supervisor.

Worker decontamination enclosure system. “Worker decontamination enclosure system” shall mean that portion of a decontamination enclosure system designed for controlled passage of workers, and other individuals and authorized visitors, consisting of a clean room, a shower room, and an equipment room separated from each other and from the work area by airlocks and curtained doorways.

Work place. “Work place” shall mean the work area and the decontamination enclosure system(s).

Work place safety plan. “Work place safety plan” shall mean documents prepared by a registered design professional and submitted for review by DEP in order to obtain an asbestos abatement permit. Such plan shall include, but not be limited to, plans, sections, and details of the work area clearly showing the extent, sequence, and means and methods by which the work is to be performed.

Work site. “Work site” shall mean premises where asbestos abatement activity is taking place, and may be composed of one or more work areas.

§1-03 Variances. (a) Application for any variance from these rules or Part 56 of Title 12 of New York Codes, Rules and Regulations (Subparts 56-4 through 56-17) shall be made directly to the Department at least two weeks prior to the commencement of work. Work involving a variance may not commence prior to the receipt of the Department’s approval of the application.

(b) The Department’s “Asbestos Variance Application” (ACP-9) form shall be prepared by a project designer and submitted by the building owner or authorized agent, and shall include the following information:

- (1) Identification of those portions of the rules for which a variance is requested, providing each numbered section and subsection;
- (2) Explanations as to why the procedures required by the rules cannot be used;
- (3) A written proposal setting forth the alternative procedures the applicant will employ to satisfy each requirement as modified; and

(4) A copy of any asbestos project notification previously filed. If the applicant has not previously filed an asbestos project notification, such notification shall be filed with the application together with the applicable fee specified in §1-25(c).

(5) A sketch or drawing illustrating the proposed modification.

(c) For each variance application where the combined amount (total of both square and linear feet on the ACP-7) of ACM is less than 5000 feet, payment of the variance processing fee shall accompany the application and shall conform with the payment schedule as follows:

1) Request to modify no more than one lettered subsection in any section category listed in subsection (e) below: \$400 fee.

(2) For each additional subsection in any category listed in subsection (e): \$200 fee.

(3) The maximum fee: \$1200.

(d) For each variance application where the combined amount (total of both square and linear feet on the ACP-7) of ACM is greater than or equal to 5000 feet, payment of the variance processing fee shall accompany the application and shall conform with the payment schedule as follows:

(1) Request to modify no more than one lettered subsection in any section category listed in subsection (e): \$600.

(2) For each additional subsection in any category listed in subsection (e): \$300.

(3) The maximum fee: \$1800.

(e) Section categories shall be as follows:

CATEGORY	NYC Asbestos Control Program Section #s	12 NYCRR Part 56 Section #s
Air Monitoring	31-45	56-4,6
Materials and Equipment	61	56-7
Work Place Preparation	81-84	56-7
Work Place Procedure	91-94	56-7
Abatement Procedures	101-110	56-8
Clean-up Procedures	111-112	56-9
Pre-Demolition Abatement Activity Procedures	120-129	---

(f) Any variance from the prohibition on concurrent abatement and full demolition or story removal set forth in section 1-126 shall only be approved after notification and consultation with FDNY and DOB.

(g) Any violation of the terms of any variance issued under this section shall be considered a violation of the lettered subdivision modified by the variance.

Subchapter B

Certification Provisions

Part 1

Certification Procedures

- §1-11 Asbestos Handler Certificate**
- §1-12 Renewal of Asbestos Handler Certificate**
- §1-13 Restricted Asbestos Handler Certificate**
- §1-14 Asbestos Handler Supervisor Certificate**
- §1-15 Renewal of Asbestos Handler Supervisor Certificate**
- §1-16 Asbestos Investigator Certificate**
- §1-17 Renewal of Asbestos Investigator Certificate**

§1-11 Asbestos Handler Certificate. (a) No individual shall engage in an asbestos project or in asbestos abatement activities on a minor project, for compensation, unless that individual is certified as an asbestos handler by the department and has an "Asbestos Handler Certificate" issued by the department which shall be available at the work place.

(b) The department shall issue an asbestos handler certificate in the form of a photo identification card which shall be valid for two years from the date of issuance to applicants who meet the following conditions:

- (1) Applicant shall be at least eighteen (18) years of age at the date of application; and
- (2) Applicant shall submit a completed application provided by the department accompanied by a fee of one hundred dollars (\$100); and
- (3) Applicant shall submit documentation of successful completion within the prior 12 months of a NYSDOH-approved Asbestos Handler training course; and
- (4) Applicant shall achieve a passing grade on a departmental examination.

(c) An applicant denied a certificate on any grounds other than failure to complete a certificate application or failure to meet the minimum requirements set forth in these rules may request a hearing before the commissioner or his/her designee to contest said denial by submitting a written request for such hearing within ten days of receipt of denial.

§ 1-12 Renewal of Asbestos Handler Certificate. (a) The handler shall apply for renewal of the certificate at least 60 days prior to the date of its expiration.

(b) Application for renewal shall be made on a form approved by the department and shall be accompanied by a fee of one hundred dollars (\$100) and proof of successful completion within the prior 12 months of a NYSDOH-approved Asbestos Handler Refresher training course; and

(c) An applicant denied a certificate on any grounds other than failure to complete a certificate application or failure to meet the minimum requirements set forth in these rules may request a hearing before the commissioner or his/her designee to contest said denial by submitting a written request for such hearing within ten days of receipt of denial.

(d) In the event that an asbestos handler certificate is lost or stolen, the certificate holder must immediately notify the department. An application for a replacement shall be made in writing and shall include a notarized statement that the certificate was lost or stolen, a statement that the applicant understands that submittal of a false statement shall subject him or her to penalties and other remedies under the law, and a fee of \$50.

§1-13 Restricted Asbestos Handler Certificate. (a) This section shall apply to individuals involved in the construction of the containment barriers of a work area (e.g., carpenters), or who otherwise enter the contained work area for a limited period of time to perform certain specialized tasks in preparation for, or ancillary to, the actual abatement (e.g., electricians); and for whom asbestos handler certification would otherwise be required. This section shall not apply to individuals performing abatement handling of ACM.

(b) The department shall issue a restricted asbestos handler certificate, in the form of a photo identification card which shall be valid for two years from the date of issuance to applicants who comply with the requirements of §1-11(b)(1)-(4), except that the fee shall be \$50.

(c) An individual certified as a restricted asbestos handler by the department shall perform only those particular job functions specified by the department in the application for certification.

§1-14 Asbestos Handler Supervisor Certificate. (a) No individual shall supervise asbestos handlers engaged in an asbestos project, for compensation, unless that individual is certified as an asbestos handler supervisor by the department.

(b) The department shall issue an asbestos handler supervisor certificate, in the form of a photo identification card which shall be valid for two years from the date of issuance, to applicants who meet the following conditions:

(1) Applicant shall be at least twenty-one (21) years of age at the time of application; and

(2) Applicant shall submit a completed application provided by the department accompanied by a fee of one hundred dollars (\$100); and

(3) Applicant shall submit documentation of successful completion within the prior 12 months of a NYSDOH-approved Asbestos Supervisor training course.

(4) Applicant shall submit additional credentials as follows:

(i) A registered design professional, certified industrial hygienist, or certified safety professional shall submit a copy of the licensing credentials or certification, and documentation of one month post-graduate experience in asbestos abatement activities.

(ii) A graduate from an accredited college or university possessing a bachelor's or advanced degree in engineering, architecture, environmental health science, industrial hygiene, occupational health and safety or a related science shall submit a copy of the degree, and documentation of three months post graduate experience in asbestos abatement activities.

(iii) A graduate from an accredited college or university possessing an associate's degree in applied science and technology, environmental health science, public health, industrial health or a related science shall submit a copy of the degree, and documentation of six months post-graduate experience in asbestos abatement activities.

(iv) All other applicants shall submit documentation of one year of experience in asbestos abatement activities.

The applicant's experience in asbestos abatement activities shall be listed chronologically and shall include each contractor's name/address/phone number; the number of hours worked per week on asbestos abatement activities; the applicant's job title and a brief description of duties; and

(5) Applicant shall achieve a passing grade on a departmental examination.

(c) The department may consider applicants who submit additional credentials which are not identical to the categories specified in subdivision (b)(4) above, but who present an equivalent combination of familiarity with abatement activities and demonstrated competence.

(d) An applicant denied a certificate on any grounds other than failure to complete a certificate application or failure to meet the minimum requirements set forth in these rules may request a hearing before the commissioner or his/her designee to contest said denial by submitting a written request for such hearing within ten days of receipt of denial.

§1-15 Renewal of Asbestos Handler Supervisor Certificate. (a) The supervisor shall apply for renewal of the certificate at least 60 days prior to the date of its expiration.

(b) The supervisor shall submit the following items for renewal:

- (1) A completed application provided by the department accompanied by a fee of \$100; and
- (2) Documentation of successful completion within the prior 12 months of a NYSDOH-approved Asbestos Handler Supervisor Refresher training course.

(c) An applicant denied a certificate on any grounds other than failure to complete a certificate application or failure to meet the minimum requirements set forth in these rules may request a hearing before the commissioner or his/her designee to contest said denial by submitting a written request for such hearing within ten days of receipt of denial.

(d) In the event that an asbestos handler supervisor certificate is lost or stolen, the certificate holder must immediately notify the department. An application for a replacement shall be made in writing and shall include a notarized statement that the certificate was lost or stolen, a statement that the applicant understands that submittal of a false statement shall subject him or her to penalties and other remedies under the law, and a fee of \$50.

§1-16 Asbestos Investigator Certificate. (a) (1) No individual shall engage in building survey and hazard assessment for asbestos unless that individual is certified as an asbestos investigator by the department.

- (2) A non-certified individual may participate in an asbestos survey being conducted by a NYC certified investigator only if such individual works in the presence of the investigator and under his/her direct and continuing supervision.
- (3) The investigator shall assume that some or all of the areas investigated contain ACM, and for each area that is not assumed to contain ACM, collect and submit for analysis bulk samples in accordance with §§1-36, 1-37 and 1-44 and EPA publications 560/5-85-024 and 560/5-85-030A, and 40 CFR Part 763.86.

(b) The department shall qualify applicants to be asbestos investigators. The applicant shall satisfy one of the following five sets of conditions:

- (1) A registered design professional, a certified industrial hygienist or a certified safety professional shall submit a copy of licensing credentials or certification.
- (2) A graduate from an accredited college or university possessing a doctorate or master's degree in architecture, engineering, environmental science, environmental health science, occupational health and safety, industrial hygiene or related environmental science shall submit a copy of the degree and documentation of six months post-graduate experience in building survey/hazard assessment for asbestos.

- (3) A graduate from an accredited college or university possessing a bachelor's degree in architecture, engineering, environmental science, environmental health science, occupational health and safety, industrial hygiene or a related environmental science shall submit a copy of the degree and documentation of one year post-graduate experience in building survey/hazard assessment for asbestos.
- (4) A graduate from an accredited college or university possessing an associate's degree in architecture, engineering technology, environmental health, public health, industrial health, applied science and technology or a related environmental science shall submit a copy of the degree and documentation of one year post-graduate experience in building survey/hazard assessment for asbestos and an additional two years of building survey-related experience.
- (5) An individual with extensive experience in asbestos investigation on a professional level shall submit documentation demonstrating two years of experience in building survey/hazard assessment for asbestos and an additional three years of other building survey-related experience.

(c) The department shall issue an asbestos investigator certificate in the form of a photo identification card which shall be valid for two years from the date of issuance to qualified applicants who submit the following:

- (1) A completed application provided by the Department accompanied by a fee of two hundred fifty dollars (\$250); and
- (2) Documentation of successful completion within the prior 12 months of a New York State Restricted Asbestos Handler-III Inspector Training course, and a passing grade on the required investigator training course; and
- (3) Documentation of a medical examination performed by a physician within the prior 12 months, which shall include at a minimum a pulmonary function test, evaluation of a recent chest x-ray and a physician's recommendation as to whether the applicant is able to wear a respirator in the performance of his/her job; and
- (4) Documentation of a qualitative or quantitative fit test performed within the prior three months, which shall include brand name and type of respirator, date and location of test, and the signature of the industrial hygienist administering the test.
 - (i) Qualitative fit test may be used only for fit testing of half-mask negative pressure respirators.
 - (ii) Quantitative fit test shall be performed on all full-face negative pressure respirators.

(d) Applicant shall achieve a passing grade on a departmental examination.

(e) Under special circumstances the department may consider applicants who submit additional credentials which are not identical to the categories specified in subdivision (b) (1) through (5) above.

(f) An applicant denied a certificate on any grounds other than failure to complete a certificate application or failure to meet the minimum requirements set forth in these rules may request a hearing before the commissioner or his/her designee to contest said denial by submitting a written request for such hearing within ten days of receipt of denial.

(g) A person who possesses an asbestos investigator certificate shall be responsible for the proper execution of his or her duties. Unprofessional conduct is prohibited. Unprofessional conduct shall include but is not limited to:

- (1) Failing to comply with the provisions of Federal, State, or local laws, rules or regulations.
- (2) Making or filing a false report, or failing to file a report required by Federal, State, or local laws, rules, or regulations.
- (3) Delegating professional responsibilities to a person who is not qualified to perform them.

(h) *Investigator's seal requirement.* (1) No NYC-certified asbestos investigator shall submit any plan or report to any client or any city, state, or federal agency that does not have the investigator's seal and signature affixed to it. Photocopies of the seal and signature are not acceptable.

- (2) Seals used by certified asbestos investigators shall be circular in shape, approximately one and three quarter inches in diameter, with three concentric circles. The inner circle shall contain an accurate representation of the great seal of the City of New York. The legend at the top of the outer band shall read "CITY OF NEW YORK" and at the bottom "CERTIFIED ASBESTOS INVESTIGATOR". In the inner circle above the great seal of the City of New York shall be shown the name of the certified asbestos investigator.
- (3) Any plan or report submitted without the investigator's seal and signature shall be considered invalid.

§1-17 Renewal of Asbestos Investigator Certificate. (a) The investigator shall apply for renewal of the certificate at least 60 days prior to the date of its expiration.

(b) The investigator shall submit the following items for renewal:

- (1) A completed application provided by the Department accompanied by a fee of \$250 payable to the Department; and
- (2) Documentation of successful completion within the prior 12 months of a NYSDOH-approved Asbestos Inspector Refresher course; and

- (3) Documentation of a medical examination performed by a physician within the prior 12 months, which shall include at a minimum a pulmonary function test, evaluation of a recent chest x-ray and a physician's recommendation as to whether the applicant is able to wear a respirator in the performance of his/her job; and
- (4) Documentation of a qualitative or quantitative fit test performed within the prior three months, which shall include brand name and type of respirator, date and location of test, and the signature of the industrial hygienist administering the test.
 - (i) Qualitative fit test may be used only for fit testing of half-mask negative pressure respirators.
 - (ii) Quantitative fit test shall be performed on all full-face negative pressure respirators.

(c) An applicant denied a certificate on any grounds other than failure to complete a certificate application or failure to meet the minimum requirements set forth in these rules may request a hearing before the commissioner or his/her designee to contest said denial by submitting a written request for such hearing within ten days of receipt of denial.

(d) In the event that an asbestos investigator certificate is lost or stolen, the certificate holder must immediately notify the department. An application for a replacement shall be made in writing and shall include a notarized statement that the certificate was lost or stolen, a statement that the applicant understands that submittal of a false statement shall subject him or her to penalties and other remedies under the law, and a fee of \$50.

Subchapter C

Notifications, Permitting and Recordkeeping

§1-21	Size and Scope of Asbestos Project
§1-22	Projects Requiring Certification to the Department of Buildings
§1-23	Alterations/Renovations/Modifications
§1-24	Reserved
§1-25	Asbestos Project Notifications
§1-26	Asbestos Abatement Permits
§1-27	Emergency Asbestos Project Notification
§1-28	Record Keeping Requirements for Investigators
§1-29	Maintenance of Project Record and Project Summary

§1-21 Size and Scope of Asbestos Project. (a) For the purpose of determining whether there has been compliance with any reporting or filing requirement established in §§1-22 through 1-27, the size and scope of the overall project shall control, with particular reference to the total amount of asbestos-containing material which will be disturbed. Such requirements may not lawfully be avoided or lessened through the performance of work in incremental or piecemeal fashion.

(b) When alternative calculations (i.e., linear feet and square feet) of the size and scope of an asbestos project result in that project coming within the definition of more than one sub-classification of asbestos project, the calculation with the higher absolute number shall determine the sub-classification of asbestos project procedures to be followed.

(c) For the purpose of §§1-21 through 1-27, the term “work” shall be understood as in the common construction usage, i.e. not specifically related to asbestos abatement activities.

§1-22 Projects Requiring Certification to the Department of Buildings. (a) This section shall apply to applications for the following projects requiring permits to be issued by the Department of Buildings:

- (1) Full demolitions.
- (2) Alterations, renovations, or modifications.
- (3) Plumbing work, except that applications for limited plumbing alterations shall be subject to this section only when the application is for the installation, alteration, or removal of fuel-burning equipment.

(b) In accordance with section 28-106.1 of the Administrative Code, the building owner or his/her authorized agent shall submit one of the following certifications to the Department of Buildings except as set forth below:

- (1) Asbestos Assessment Report. If the building (or portions thereof) affected by the work are free of asbestos-containing material or the amount of ACM to be abated constitutes a minor project, an asbestos assessment report (Form ACP-5) completed, signed, and sealed by a DEP-certified asbestos investigator, along with a fee of \$47.00 shall be submitted to DEP prior to construction document approval and to any amendment of the construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.
- (2) Asbestos Exemption Certification. If the work is exempt pursuant to section 1-23(b) of these rules, an asbestos exemption certification (Form ASB4) completed, signed, and sealed by the applicant for a DOB permit shall be submitted to DOB prior to construction document approval and to any amendment of the construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.
- (3) Asbestos Project Completion Form. If an asbestos project has been performed and satisfactorily completed in accordance with these rules, a copy of the asbestos project completion form issued to the building owner or its authorized representative by DEP shall be submitted to DOB prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

- (4) An Asbestos Project Conditional Completion Form. If an asbestos project has been performed but would be subject to the procedures of section 1-26(c)(2)(ii), a copy of the asbestos project conditional completion form issued to the building owner or its authorized representative by DEP shall be submitted to DOB prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

§1-23 Alterations/Renovations/Modifications. (a) As early as possible before an alteration, renovation, modification, demolition, or plumbing work takes place, or changes in such work occur, the building owner shall be responsible for having an asbestos survey performed by a DEP-certified asbestos investigator to determine the absence or presence of asbestos-containing material which may be disturbed during the course of the work. The owner of the building or authorized agent shall comply with the notification requirements of section 1-25 regarding asbestos-containing material.

(b) *Asbestos Exemption Certification (ASB4 Form).* Where the work to be performed requires a permit to be issued by the Department of Buildings, an asbestos exemption certification (ASB4 Form) may be submitted to the Department of Buildings in accordance with section 1-22(b)(2) of these rules where the applicant for construction document approval certifies that:

- (1) the permit sought does not involve the performance of any physical work, such as permits for zoning lot subdivisions, zoning lot reapportionment, or changes in the certificate of occupancy; or
- (2) no existing building materials are to be disturbed by the proposed work; or
- (3) the activities being performed include work on one of the following:

Awnings

Cranes not anchored to building or structure

Emergency power not involving hard wiring, e.g. battery packs

Exterior concrete work (e.g. sidewalks, curb cuts, traffic islands) except if waterproofing compound is present

Exterior scaffolding not anchored to building or structure

Exterior trenching and drainage

Ground-mounted flagpoles

New storefronts in existing masonry openings (no disturbance of existing building)

Radio antennas (free-standing towers)

Relocating free-standing parking lot sheds

Replacing rooftop air conditioning (no modification of ductwork or disturbance of building)

Roadway asphalt

Sealing unsafe or abandoned buildings with cinderblock and mortar

Sidewalk sheds, bridges, fences, elevators, hoists and café signs (no penetration of building materials)

Street furniture, e.g. candy or newsstands, bus shelters, kiosks

Installation of new outdoor swimming pool

Free-standing tents

Erection of temporary structures (e.g. trailers) with electric/water lines only

(c) *Asbestos Assessment Report (ACP-5 Form)*. If, after a survey performed by a DEP-certified asbestos investigator, it is determined that the building (or portion thereof) affected by the work is free of asbestos-containing material or the amount of ACM to be abated constitutes a minor project, said asbestos investigator shall complete, sign, and affix his or her seal to the asbestos assessment report (ACP-5 Form) which shall be submitted with a fee of \$47.00 to DEP in accordance with section 1-22(b)(1) of these rules.

(d) *Asbestos Project Completion Form*. Where the work to be performed constitutes an asbestos project, an asbestos project notification (ACP-7 Form) shall be submitted to DEP in accordance with the provisions of section 1-25 of these rules. Upon completion of the asbestos project and submission of all required documentation to DEP, DEP shall issue an asbestos project completion form to the building owner or its authorized representative.

§1-24 Reserved

§1-25 Asbestos Project Notifications.

(a) This section shall apply to the following categories:

- (1) Removal, encapsulation, enclosure or replacement of asbestos-containing materials (including insulation); and
- (2) Work in or into plenum spaces of existing buildings (e.g. electrical, ventilation, cable, sheet metal work, etc.); and
- (3) Removal of asbestos-covered structures and equipment such as boilers, pipes, etc.; and
- (4) Other miscellaneous activities not previously exempted.

(b) *Work constituting a minor project.* If the work is a minor project, no notification or fee payable to the department shall be required, unless notification and fees are otherwise required by these regulations.

(c) *Asbestos Projects.* If the cumulative total of all surfaces affected by the work is an asbestos project, the department's asbestos project notification (ACP-7 Form) completed by the building owner or authorized agent, and listing each work area within the building separately, shall be submitted directly to the department one week in advance of the start of the work along with a filing fee in the following amounts:

- (1) For work which will disturb more than 25 linear feet but less than 100 linear feet, or more than 10 square feet but less than 50 square feet, of asbestos-containing material, the fee shall be \$200.
- (2) For work which will disturb at least 100 linear feet and less than 260 linear feet, or at least 50 square feet and less than 160 square feet, of asbestos-containing material, the fee shall be \$400.
- (3) For work which will disturb at least 260 linear feet and less than 1,000 linear feet, or at least 160 square feet and less than 1,000 square feet, of asbestos-containing material, the fee shall be \$800.
- (4) For work which will disturb 1,000 linear feet or more, or 1,000 square feet or more, of asbestos-containing materials, the fee shall be \$1,200.

(d) Modification of or deviation from the information provided in any notification submitted to the DEP under this section shall immediately be reported in writing directly to DEP if the change refers to the identity of the building owner or ACM removal contractor or the air monitoring firm; or the amount of ACM to be removed; or the dates of the project; or the specific project location. A notification may be modified no more than twice, however, a modification related to the extension or reinstatement of an asbestos abatement permit shall not count towards this total. A modification is valid only if it is received by the DEP prior to the previously filed date of completion, except for start date changes which must be received by the original start date. Thereafter, a new notification submitted directly to the department will be required. Additional work, identified after the completion of the work indicated on the asbestos project notification and successful clearance air monitoring, shall require a new notification. A notification to DEP shall be valid for one year from the date of original filing.

§ 1-26 Asbestos Abatement Permit. (a) *Permit required.* An asbestos abatement permit authorizing the performance of construction work shall be required for asbestos projects involving one or more of the following activities:

- (1) Obstruction of an exit door leading to an exit stair or the exterior of the building;
- (2) Obstruction of an exterior fire escape or access to that fire escape;
- (3) Obstruction of a fire-rated corridor leading to an exit door;

- (4) Removal of handrails in an exit stair or ramp within the work area;
- (5) Removal or dismantling of any fire alarm system component including any fire alarm-initiating device (e.g., smoke detectors, manual pull station) within the work area;
- (6) Removal or dismantling of any exit sign, including directional signs, or any component of the exit lighting system, including photoluminescent exit path markings within the work area;
- (7) Removal or dismantling of any part of a sprinkler system including piping or sprinkler heads within the work area;
- (8) Removal or dismantling of any part of a standpipe system including fire pumps or valves within the work area;
- (9) Any abatement activity to be performed within a building concurrently with the full demolition of such building or concurrently with the removal of one or more stories of such building;
- (10) Removal of any non-load bearing / non-fire-resistance rated wall (greater than 45 square feet or 50 per cent of a given wall) within the work area;
- (11) Any plumbing work other than the repair or replacement of plumbing fixtures within the work area;
- (12) Removal of any fire-resistance rated portions of a wall, ceiling, floor, door, corridor, partition, or structural element enclosure including spray-on fire-resistance rated materials within the work area;
- (13) Removal of any fire damper, smoke damper, firestopping material, fireblocking, or draft stopping within fire-resistance rated assemblies or within concealed spaces;

(b) *Work Place Safety Plan.*

- (1) Plan required. For projects requiring an asbestos abatement permit due to one or more of the activities listed in (a)(1-9), the building owner or its authorized representative shall submit, together with the asbestos project notification, a work place safety plan (WPSP) and any other applicable construction documents, which shall be prepared by a registered design professional, and a permit fee as specified in subsection (g).
- (2) Plan not required. For projects requiring an asbestos abatement permit due to one or more of the activities listed in (a)(10-13), the building owner or its authorized representative shall submit, together with the asbestos project notification, all applicable asbestos abatement permit construction documents, and a permit fee as specified in subsection (g).

(i) If the WPSP is being submitted pursuant to subsection (a)(9), it shall also set forth the sequencing of the proposed work. The WPSP shall not be approved unless it provides for a buffer of four floors or an adequate buffer as determined by the commissioner between the abatement and the demolition or floor removal work.

(3) Plan requirements. The WPSP shall include, but not be limited to, the following items, depending on the size and scope of the asbestos project:

- i. Floor plans showing the locations of all asbestos project work areas in the building.
- ii. Floor plans indicating the locations of any components of the fire alarm system which have been deactivated, and setting forth mitigation measures to be implemented for the duration of the project.
- iii. Floor plans indicating the locations of obstructed or removed exit signage and lighting and setting forth mitigation measures to be implemented for the duration of the project.
- iv. Floor plans indicating the locations of any obstructed means of egress or required exit and setting forth mitigation measures to be implemented for the duration of the project.
- v. Floor plans or riser diagrams indicating the locations of any disengaged or removed components of the fire protection system and setting forth mitigation measures to be undertaken for the duration of the project.
- vi. A written description of all measures taken to mitigate compromised fire protection systems or means of egress, including but not limited to surveillance by a fire watch and an action plan setting forth procedures to be taken for the safety of building occupants in the event of an emergency.
- vii. If the asbestos project is being performed in a building where any dwelling unit is to be occupied for the duration of the permit, the WPSP shall include a tenant protection plan as required by chapter 1 of Title 28 of the Administrative Code.
- viii. A list of all non asbestos contractors who will perform work on the project.

(4) Approval. The documents submitted pursuant to subsection (b) will be reviewed by DEP's asbestos technical review unit (A-TRU) and by any other relevant city agencies. Upon approval by A-TRU, DEP will issue an asbestos abatement permit to the building owner or its authorized representative.

(c) *Inspections required.* (1) All inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required by Chapter 17 of the Building Code, shall be performed by a registered design professional who is independent of the abatement contractor.

(2) A final inspection shall be performed by a registered design professional after all work authorized by the asbestos abatement permit is completed. The person

performing the inspection shall note all failures to comply with the provisions of the Building Code or approved asbestos abatement permit and shall promptly notify the owner in writing. All defects noted in such inspection shall be corrected.

The final inspection report shall either:

(i) confirm:

- (A) that the construction work is complete, including the reinstallation or reactivation of any building fire safety or life safety component; and
- (B) that any defects previously noted have been corrected; and
- (C) that all required inspections were performed; and
- (D) that the work is in substantial compliance with the approved asbestos abatement permit construction documents, the Building Code, and other applicable laws and rules; or

(ii) confirm:

- (A) that the construction work does not return the building (or portion thereof) affected by the abatement project to a condition compliant with the building code and other applicable laws and rules, but that the registered design professional has reviewed an application for asbestos abatement permit construction documents approval that has been approved by the department of buildings, and the subsequent scope of work as approved will, upon completion, render all areas affected by the asbestos project in full compliance with the building code and all applicable laws and rules; and
- (B) that any defects previously noted that are not addressed by the subsequent scope of work as approved by the department of buildings, have been corrected; and
- (C) that all required inspections that are not addressed by the subsequent scope of work as approved by the department of buildings were performed; and
- (D) that all completed work pursuant to an asbestos abatement permit is in substantial compliance with the approved asbestos abatement permit construction documents.

- (3) Final inspection reports shall be filed with DEP on A-TR1 form. Records of final inspections made by registered design professionals shall be maintained by such persons for a period of six years after final inspection or for such other period as the commissioner shall require and shall be made available to the department upon request.

(d) *Duration of Permit.* An asbestos abatement permit shall expire upon the earlier of one year from the date of issuance or when terminated pursuant to either of the following:

- (1) The holder of an asbestos abatement permit submits a final inspection report pursuant to (c)(2)(i).
- (2) The holder of an asbestos abatement permit submits a final inspection report pursuant to (c)(2)(ii) and obtains a Department of Buildings permit for work which, when completed, will render all areas affected by the project fully compliant with the building code and all other applicable rules and laws.

(e) *Failure to terminate asbestos abatement permit within year.* (1) Failure to terminate an asbestos abatement permit pursuant to subsection (d) within a year from the date of issuance of said permit shall be a violation subject to fine unless the applicant obtains a renewal pursuant to paragraph (2) of this subdivision. Each 60-day period during which such violation continues to occur constitutes a separate offense that may be subject to a separate fine.

(2) The holder of an asbestos abatement permit may extend the term of such permit for additional six month periods upon the submission, within 30 days before the expiration of said permit, of an amendment on a form prescribed by DEP and the payment of a fee in the same amount as the fee paid for the original permit.

(3) If the holder of an asbestos abatement permit fails to terminate an asbestos abatement permit within a year from the date of issuance, the holder shall maintain the work area in a safe manner including but not limited to any mitigation measures set forth in the WPSP and shall not perform work unless the holder reinstates the permit upon submission of an amendment on the forms prescribed by the Department and the payment of a new fee in the same amount as the fee paid for the original permit. Such reinstatement shall be valid for a period of six months from issuance. If the asbestos abatement permit is not terminated during a six-month reinstatement period, the holder of a reinstated asbestos abatement permit must submit a subsequent amendment and fee to reinstate the permit for another six-month period.

(f) *Insurance.* Entities other than NYSDOL-licensed asbestos contractors performing work pursuant to an asbestos abatement permit which does not involve the disturbance of asbestos-containing materials shall maintain insurance of the same type and amount as would be required if the entity were working pursuant to a permit issued by the Department of Buildings.

(g) *Permit fee.* The WPSP, asbestos abatement permit construction documents, as applicable, shall be accompanied by a filing fee, as follows:

<u>Project Size</u>	<u>Fee</u>
Small projects up to 99 linear feet or 49 square feet of ACM	\$100
100 to 259 linear feet or 50 to 159 square feet of ACM	\$300
Large projects up to 1000 square/linear feet of ACM	\$500
1000 to 4999 square/linear feet of ACM	\$700
5000 to 9999 square/linear feet of ACM	\$1100
10,000 or more square/linear feet of ACM	\$1300

(h) Work covered by the asbestos abatement permit shall not commence until said permit is issued.

§1-27 Emergency Asbestos Project Notification. (a) An emergency asbestos project involves the removal, enclosure or encapsulation of asbestos-containing material that was not planned but is undertaken when sudden unexpected event(s) result in a situation in which any delay in abatement would pose an immediate danger to public safety and health.

(b) When such an emergency asbestos project occurs, immediate telephone notification shall be provided to DEP's asbestos control program. Telephone notification shall include:

- (1) Name, affiliation and telephone number of caller;
- (2) Nature of the emergency;
- (3) Type of asbestos work to be performed and the quantity of ACM to be abated;
- (4) Exact location of the project including street address and borough;
- (5) Name, address, and telephone number of the asbestos abatement contractor and the air monitoring company; and
- (6) Starting and projected completion dates.
- (7) Such other factors as the department may determine are relevant for that project.

(c) An asbestos project notification (ACP-7 Form) shall be submitted to DEP in accordance with the provisions of section 1-25 of these rules as soon as possible, but not later than 48 hours after the project begins. In such cases, the ACP-7 Form shall be accompanied by a cover letter including the following information:

- (1) that the project is an emergency asbestos project;
- (2) the nature of the emergency;
- (3) the DEP emergency control number issued at the time of the telephone notification;
and
- (4) a description of the scope of work.

With respect to projects commenced under this section, the department, based on inspection by the department and other relevant agencies, may exempt the emergency project from the requirements of section 1-26. Any such exemption will be confirmed in writing by the department.

§1-28 Record Keeping Requirements for Investigators. (a) The asbestos investigator shall maintain a permanent record as required under this section for every building survey/hazard assessment for asbestos that is conducted pursuant to or submitted in accordance with §§1-22 through 1-27 of this chapter.

(b) For each building survey/hazard assessment conducted prior to preparation of either the asbestos project notification (ACP-7) or asbestos assessment report (ACP-5), the investigator shall compile a record which shall include at a minimum:

- (1) A survey report that reflects the condition of the work area at the time of the investigator's inspection. The report is to include, at a minimum, the building's address and the name and address of the building owner, as well as the locations, quantities, and condition of all building materials in the affected portion(s) of the building or structure relative to the ACM contained therein; the building or structure's address; and the name and address of the building owner; and
- (2) A blueprint, diagram, drawing, or written description of each building or portion thereof inspected by the investigator that identifies clearly each location and approximate linear or square footage of any area where material was sampled for ACM, and the exact locations where bulk samples were collected, the date of collection, and location of any areas assumed to have ACM; and
- (3) The printed name and signature of any and all persons who collect bulk samples for the purpose of determining the presence of ACM, a copy of the current DEP asbestos handler certificate and NYSDOL asbestos handler certificate of each such person, the name of the firm performing the survey and a copy of its current NYSDOL asbestos handling license, the name and address of the laboratory analyzing the samples, the date of analysis, the results of the analysis, the method of analysis and the name and signature of the person performing the analysis; and
- (4) A detailed written description of any proposed demolition, renovation, alteration or modification work to be performed, including the techniques to be used and a description of affected facility components ;and
- (5) A chain of custody for all bulk samples collected as part of the survey.

(c) The investigator shall indicate in each record all instances in which work was performed by a non-certified individual pursuant to §1-16(a)(2), and shall include such individual's name, address, telephone number, and a specific description of all activities performed by such individual.

(d) The investigator shall maintain these records for thirty (30) years.

(e) The investigator shall make these records available during normal business hours without cost or restriction for inspection by a representative of the Department.

§1-29 Maintenance of Project Record and Project Summary (a) A project record shall be maintained for all small and large asbestos projects. During the project, the project record shall be kept on site at all times and may be maintained by the building owner or his authorized representative, which may be the asbestos abatement contractor or the air monitoring company. Upon completion of the project, the project record shall be maintained by the building owner. The project record shall be produced upon verbal or written request by any DEP inspector. Upon transfer of ownership of the building, all project records for past asbestos projects shall be turned over to the new owner. The project record shall consist of:

- (1) Copies of licenses of all contractors involved in the project.
- (2) Copies of DEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;
- (3) Copies of all project notifications and reports filed with DEP and NYSDOL for the project, with any amendments or variances;
- (4) Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;
- (5) A copy of the air sampling log and all air sampling results;
- (6) A copy of the abatement contractor's daily log book;
- (7) All data related to bulk sampling including the results of any asbestos surveys performed by an asbestos investigator;
- (8) Copies of all waste manifests;
- (9) A copy of all project monitor's reports.

(b) In addition to the project record required in subsection (a), the asbestos abatement contractor shall maintain, for at least thirty (30) years after the end of the project, a project summary for each asbestos project in which they engage, consisting of the following:

- (1) Name, address, and DEP certificate number of all individuals who worked on the project;
- (2) Location and general description of the project;
- (3) Amount of ACM abated;
- (4) Start and completion dates;
- (5) Name, address, and NYSDOL asbestos handling license number of the air monitoring company;

- (6) Name, address, and ELAP registration number of the laboratory used for air sample analysis;
- (7) Name and address of the site used for disposal of the ACM waste generated by the project;
- (8) Name and address of the asbestos hauler;
- (9) Copy of the project log.

(c) The building owner or contractor, as applicable, must make the project record or project summary required by this section available for inspection by DEP within 72 hours of request, except that during the project the project record must be made available immediately upon request.

Subchapter D

Air and Bulk Sampling, Monitoring and Analysis

- Part 1 Applicability**
- 2 Personnel Qualifications and Equipment Specifications**
- 3 Monitoring Procedures**

Part 1 *Applicability*

§1-31 Performance of Air and Bulk Sampling, Monitoring and Analysis

§1-31 Performance of Air and Bulk Sampling, Monitoring and Analysis. Air sampling, monitoring, and analysis on asbestos projects, and bulk sampling and analysis to determine asbestos content, shall be performed in accordance with the provisions of the following §§1-31 through 1-45 inclusive.

Part 2

Personnel Qualifications and Equipment Specifications

§1-36 Persons Qualified to Perform Sampling and Analysis

§1-37 Sampling Equipment Requirements

§1-36 Persons Qualified to Perform Sampling and Analysis.

(a) Sampling and analysis shall be performed by:

- (1) a third party who is contracted by the building owner, holds a current NYSDOL asbestos handling license, and is completely independent of all parties involved in the asbestos project. The third party who conducts air sampling on an asbestos project shall not be a subcontractor of the abatement contractor, and shall not have any business, personal, or other relationship with the abatement contractor. The building owner shall select and hire the air monitoring firm without recommendation or reference from the abatement contractor. It shall be a violation of this subsection, chargeable against the abatement contractor, the air monitoring firm, and the building owner, for an air monitoring firm to conduct air monitoring on an asbestos project where there is a business or personal relationship between the abatement contractor and the air monitoring firm. It shall be considered prima facie evidence of a business or personal relationship between an abatement contractor and an air monitoring firm when the same firm performs air monitoring on all or virtually all of a given abatement contractor's projects. The person who conducts sampling shall be currently certified as a New York State Asbestos Project Air Sampling Technician when performing air sampling. Failure to produce the certificate upon request shall be a violation chargeable against the individual conducting the sampling; or
- (2) Sampling and analysis staff which may not be independent of the building owner but are independent of the abatement contractor involved in the asbestos project, but only if such staff:
 - (i) performs in conjunction with a third party quality assurance program in which 10 percent of the samples, except for bulk samples initially found to contain ACM, from each project are randomly selected and will be analyzed by both entities; and
 - (ii) in the case of air sampling, possesses valid New York State Asbestos Project Air Sampling Technician Certification.
- (3) Sampling and analysis staff of a public service corporation with respect to asbestos projects that involve electric, steam or gas generation, distribution or transmission facilities provided that the requirements of subparagraphs (i) and (ii) of paragraph 2 of this section are complied with.

(4) Only persons certified by the Department as asbestos investigators or by New York State Department of Labor as Asbestos Inspectors may select and collect bulk samples for analysis.

(b) An air sampling technician shall be present at the work site to observe and maintain air sampling equipment for the duration of the air sample collection.

(c) Bulk sample analysis (PLM or gravimetric reduction and TEM analysis) shall be performed by laboratories with the appropriate accreditation in the ELAP.

(d) Air Sample Analysis (PCM) shall be performed by laboratories with the following qualifications:

(1) Successful completion by the laboratory's active analysts of the NIOSH 582 training course which outlines the NIOSH 7400 method; and

(2) Analysts with skills in the appropriate methodology and proficiency in the NIOSH PAT Program for PCM analysis; and

(3) Accreditation in ELAP.

(e) Air Sample Analysis (TEM) shall be performed by analysts who possess skills in TEM analysis, are accredited in ELAP, and participate in an in-house quality assurance program using the National Institute of Standards and Technology (NIST SRM 1876 b) or traceable standard.

§1-37 Sampling Equipment Requirements.

(a) *Bulk sampling requirements.* (1) Bulk samples shall be taken by whatever method minimizes the potential for fiber release.

(2) Any material which remains exposed as a result of the sampling procedure shall be sealed.

(b) Area air sampling equipment for Phase Contrast Microscopy (PCM) shall be utilized in accordance with the equipment and sampling procedures specified within the NIOSH 7400 Method modified for area sampling.

(c) Area air sampling equipment for Transmission Electron Microscopy (TEM) shall be utilized in accordance with the sampling procedures specified within 40 CFR Part 763, Subpart E, Appendix A - Section II Mandatory Transmission Electron Microscopy Method, Subsection B-Sampling.

(d) Air sampling pumps shall have a constant controlled flow and shall have the flow rate capacity to perform sampling as specified in these rules. A properly calibrated rotometer shall be used to check the flow rate. A rotometer shall be available at the work place for the duration of air sample collection. Primary and secondary calibration devices shall be calibrated as per NYSDOH ELAP requirements.

(e) Sampling pumps, cassettes, and tubing shall be checked before, during and after use. The sampling assembly shall be checked for leaks and occlusions.

(f) A project air sampling log shall be created and maintained in a bound notebook by the air monitoring company. The project air sampling log shall be available at the work site. A copy of the log shall be submitted to the department within 24 hours of request. The log shall contain the following information for all area air samples collected on the asbestos project:

- (1) Name of the firm and the certified air sampling technician performing the project air sampling, per work shift or day for all area air samples collected.
- (2) Dates of project air sample collection, per work shift or day of area air samples, with appropriate reference to the work area to which the air samples apply.
- (3) Sample location sketch, identifying all project air sample locations, per work shift or day of area air samples.
- (4) Flow rate primary or secondary calibration device identification number, method of flow rate primary or secondary device calibration and date of last calibration, per work shift or day of area air samples.
- (5) Flow rate of sampling pumps with pre and post calibration listed for each area air sample collected.

Part 3

Monitoring Procedures

§1-41 Air Sampling Schedule

§1-42 Monitoring Requirements

§1-43 Post-Abatement Clearance Air Monitoring

§1-44 Analysis and Reporting Results

§1-45 Action Criteria

§1-41 Air Sampling Schedule. (a) At a minimum, air sampling shall be conducted in accordance with the following schedule:

Abatement Activity	<u>Pre-Abatement</u>	<u>During Abatement</u>	<u>Post-Abatement</u>
Equal to or Greater than 10,000 ft. ² or 10,000 linear ft. of ACM per work area	PCM	PCM	TEM
Less than 10,000 ft. ² or 10,000 linear ft. of ACM	PCM	PCM	PCM

		Pre-Abatement	During Abatement	Post Abatement
	Large Asbestos Projects			
1.	Full Containment	10	5	10
2.	Glovebag inside Tent	5 ^a	5 ^a	5 ^a
3.	Exterior Foam and Vertical Surfaces	---	5 ^c	5 ^d
4.	Interior Foam	10	5 ^c	10 ^d
	Small Asbestos Projects			
1.	Full Containment	6	3	6
2.	Glovebag inside Tent	3 ^b	3 ^b	3 ^b
3.	Tent	3 ^b	3 ^b	3 ^b
4.	Exterior Foam and Vertical Surfaces	---	3 ^c	3 ^d
5.	Interior Foam	6	3 ^c	6 ^d
	Minor Projects			
1.	Glovebag inside Tent	---	---	1 ^d
2.	Tent	---	---	1 ^d
3.	Exterior Foam and Vertical Surfaces	---	---	1 ^d
4.	Interior Foam	---	---	1 ^d

^a if more than three (3) tents then two (2) samples required per enclosure.

^b if more than three (3) tents then one (1) sample required per enclosure.

^c samples shall be taken within the work area(s).

^d area sampling is required only if:

- visible emissions are detected during the project
- during-abatement area sampling results exceeded 0.01 f/cc or the pre-abatement area sampling result(s) for interior projects where applicable.
- work area to be reoccupied is an interior space at a school, healthcare, or daycare facility.

Note: TEM is acceptable wherever PCM is required.

(b) *Pre-Abatement.* Prior to commencement of abatement activities, the number of samples specified below shall be taken during normal occupancy activities and circumstances at the work site. Samples shall be taken at the following locations:

- (1) For large full-containment and interior foam method asbestos projects, a minimum of five samples inside and five samples outside the proposed work area.
- (2) For small full-containment and interior foam method asbestos projects, a minimum of three samples inside and three outside the proposed work area.
- (3) For large and small asbestos projects employing the glovebag procedure within a tent, a minimum of five and three samples, respectively, or two samples per enclosure if more than three enclosures.
- (4) For small asbestos projects solely employing tent procedure, a minimum of three samples inside each proposed work area, or two samples per enclosure if more than three enclosures.
- (5) For all exterior projects (foam or vertical surface), no pre-abatement sampling is required.

(c) *During abatement.* Frequency and duration of the air sampling during abatement shall be representative of the actual conditions during the abatement. Area sampling shall be conducted daily and continuously during a work shift. If more than one daily work shift is required to accomplish the work, area sampling shall be performed on each work shift. Area sampling is not required on days when there are no abatement activities. For project air samples collected during the abatement, the period of time permitted between completion of air sample collection and receipt of results on the job site shall not exceed 48 hours. The following minimum schedule of samples shall be required during the work shift.

- (1) For large asbestos projects employing full containment, area air sampling shall be performed at the following locations:
 - (i) Two area samples outside the asbestos project work area in uncontaminated areas of the building, remote from the decontamination facilities.
 - (A) Primary location selection shall be within 10 feet of isolation barriers.
 - (B) Where negative ventilation exhaust ducting runs through uncontaminated building areas, one area sample will be required in these areas to monitor any potential fiber release.
 - (C) Where exhaust tubes have been grouped together in banks of up to five (5) tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area, one area air sample shall be taken.

- (ii) One area sample within five feet of the uncontaminated entrance to each worker decontamination and waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable; and
 - (iii) One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct.
 - (iv) One area sample outside, but within 25 feet of, the building or structure, if the entire building or structure is the work area.
- (2) For large asbestos projects involving interior foam method, area air sampling shall be performed at the following sampling locations:
- (i) One area sample taken outside the work area within 10 feet of isolation barriers.
 - (ii) One area sample taken within five feet of the uncontaminated entrance to each worker decontamination and waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable. .
 - (iii) One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct, if applicable.
 - (iv) Three area samples inside the work area.
 - (v) One area sample where the negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.
- (3) For large asbestos projects involving exterior foam method or removal of ACM from vertical surfaces, a minimum of five continuous area samples shall be taken concurrently with the abatement for each work area using the following minimum requirements:
- (i) Four area samples inside the work area and remote from the decontamination systems.
 - (ii) One area sample within five feet of the uncontaminated entrance to each worker and waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable.
 - (iii) One area sample outside the work area within 25 feet of the building or structure, if the entire building or structure is the work area.
 - (iv) One area sample inside the building or structure at the egress point to the work area, if applicable.

- (4) For large asbestos projects employing the glovebag procedure within a tent, a minimum of five continuous air samples shall be taken concurrently with the abatement for each work area, unless there are more than three enclosures, in which case two area samples per enclosure are required.
- (i) Four area samples taken outside the work area within ten feet of tent enclosure(s).
 - (ii) One area sample taken within five feet of the uncontaminated entrance to each worker and waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable.
 - (iii) One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.
 - (iv) One area sample where negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.
- (5) For small asbestos projects employing full containment, a minimum of three continuous area samples shall be taken concurrently with the abatement for each work area at the following locations:
- (i) Two area samples taken outside the work area within ten feet of the isolation barriers.
 - (ii) One area sample within five feet of the uncontaminated entrance to each worker or waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable.
 - (iii) One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.
 - (iv) One area sample where negative ventilation exhaust ducting runs through an uncontaminated building area, if applicable.
- (6) For small asbestos projects involving the use of foam method on the exterior of a building or the removal of ACM from exterior surfaces, a minimum of three continuous area samples shall be taken concurrently with the abatement for each work area at the following locations:
- (i) Two area samples inside the work area and remote from the decontamination systems.
 - (ii) One area sample within five feet of the uncontaminated entrance to each worker and waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable.

- (iii) One area sample inside the building or structure at the egress point to the work area, if applicable.
- (7) For small asbestos projects using the tent procedure (with or without the use of glovebags), a minimum of three area samples shall be taken concurrently with the abatement for each work area unless there are more than two enclosures, in which case one sample per enclosure is required.
 - (i) Two area samples taken outside of the work area within ten feet of the tent.
 - (ii) One area sample within five feet of the uncontaminated entrance to each worker and waste decontamination system, or parallel worker and waste decontamination system, if applicable.
 - (iii) One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.
 - (iv) One area sample where negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.
- (8) For small asbestos projects employing interior foam procedures, a minimum of three continuous area samples shall be taken concurrently with the abatement for each work area at the following locations:
 - (i) One area samples taken inside the work area.
 - (ii) One area sample taken within five feet of the uncontaminated entrance to each worker and waste decontamination enclosure system, or parallel worker and waste decontamination system, if applicable.
 - (iii) One area sample taken outside the work area within ten feet of the isolation barriers.
 - (iv) One area sample where negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.
- (d) *Post-abatement.* Post-abatement clearance air monitoring shall include at a minimum the number of area samples specified below, to be taken for each homogeneous work area.
 - (1) For small asbestos projects:
 - (i) involving full containment or interior foam method, three area samples inside and three outside the work area;
 - (ii) involving tent procedure (with or without the use of glovebags), three area samples inside each work area or one area sample inside each tent if there are more than three tents;

- (iii) involving exterior foam method or removal from vertical surfaces, three area samples inside the restricted area beneath and/or immediately adjacent to the work area, only if visible emissions were detected during the project, or abatement area samples exceeded 0.01 f/cc.
- (2) For large asbestos projects,
 - (i) a minimum of five area samples inside and five outside the work area, for projects involving full containment or interior foam method. In addition to the 5 sample minimum, one representative area sample shall be collected both inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space when ACM has been abated.
 - (ii) a minimum of five area samples inside each tent enclosure where glovebag procedures are being used, or two area samples inside each tent where glovebag procedures are being used if there are more than three tents;
 - (iii) involving exterior foam method or removal from vertical surfaces, five area samples inside the restricted area beneath and/or immediately adjacent to the work area, only if visible emissions were detected during the project, or abatement area samples exceeded 0.01 f/cc.
- (3) When TEM analysis is employed a minimum of 5 samples from outside the work area shall also be collected.
- (4) For minor projects post-abatement clearance air monitoring is not required, unless visible emissions were detected outside the work area and/or levels exceeded 0.01 f/cc during abatement, or the project was conducted inside a school, daycare, or healthcare institution. In such cases, one area sample shall be taken.

§1-42 Monitoring Requirements. Monitoring requirements and procedures for other than post-abatement clearance air monitoring are as follows:

- (a) The sampling zone for indoor air samples shall be representative of the building occupants' breathing zone. However, at no time shall the sampling cassette be placed less than 4 feet from the ground. Air samplers shall be placed so that they are not influenced by unusual air circulation patterns or by the configuration of the space or by each other. Air sampling cassettes shall be mounted upon commercially-available aluminum tripods and shall not be placed within two feet of walls or obstructions such as the corners of rooms or furniture.
- (b) If possible, ambient samplers should be placed about 6 feet above the ground surface in reasonable proximity to the building and away from obstructions and drafts that may unduly affect airflow.

For outdoor samples, if access to electricity and concerns about security dictate a rooftop site, locations near vents and other structures on the roof which would unduly affect airflow shall be avoided.

(c) Samples shall have a chain of custody record. The project air sampling log required pursuant to section 1-37(f) of these rules does not satisfy the chain of custody requirement.

(d) In accordance with the above criteria, area samples (see §1-41) shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow
PCM 25 mm	560	5 to 15 liters/min.
TEM 25 mm	560	1 to 10 liters/min.
TEM 37 mm	1,250	1 to 10 liters/min.

(e) For small projects including tent procedures, sampling shall start with the installation of the containment and shall run concurrently with the procedure.

§1-43 Post-Abatement Clearance Air Monitoring. Post-abatement clearance air monitoring requirements are as follows:

(a) (1) Sampling shall not begin until a visual inspection, conducted by a project monitor who is independent of the abatement contractor and by the asbestos handler supervisor, confirms that all containerized waste has been removed from work and holding areas and there is no visible ACM debris or residue on or about all abated surfaces; and

(2) Sampling shall not begin until at least 1 hour after the area is dry from the third cleaning (see §1-112(e)) and no visible pools of water or condensation remain.

For pre-demolition asbestos abatement activity, sampling shall begin 2 hours after the area is dry and no visible pools of water or condensation remain.

(b) Samplers shall be placed at random around the work area. If the work area contains the number of rooms equivalent to the number of required samples based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the required number of samples a representative sample of rooms shall be selected.

(c) The representative samplers placed outside the work area but within the building shall be located to avoid any air that might escape through the isolation barriers and shall be approximately 50 feet from the entrance to the work area, and 25 feet from the isolation barriers.

(d) The following aggressive sampling procedures shall be used within the work area during all clearance air monitoring:

- (1) Before starting the sampling pumps, use forced air equipment (such as a 1 horsepower leaf blower) to direct exhaust air against all walls, ceilings, floors, ledges and other surfaces in the work area.
 - (i) For asbestos projects: this pre-sampling procedure shall take at least 5 minutes per 1,000 sq. ft. of floor area; then install one 20-inch fan per 10,000 cubic feet of room space. Then immediately place the fan on slow speed and point it toward the ceiling.
 - (ii) For pre-demolition asbestos abatement activity, this pre-sampling procedure shall take at least three minutes, after which the 20-inch fan shall be left running unattended in the work area throughout sampling. This procedure shall be acceptable when the floor area of the work area is less than 500 square feet. At or above 500 square feet of floor area within the work area, the aggressive sampling procedures specified in this subdivision (d) for asbestos projects shall be conducted.
- (2) Start the sampling pumps and sample for the required time or volume.
- (3) Turn off the pump and then the fan(s) when sampling is completed.
- (e) For post-abatement monitoring, area samples shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow
PCM	1,800 Liters	5 to 15 liters/min.
TEM	1,250 Liters	1 to 10 liters/min.

(f) Each homogeneous work area which does not meet the clearance criteria shall be thoroughly recleaned using wet methods, with the negative pressure ventilation system in operation. New samples shall be collected in the work area as described above. The process shall be repeated until the work site passes the test.

(g) For an asbestos project with more than one homogenous work area, the release criterion shall be applied independently to each work area.

§1-44 Analysis and Reporting Results. Laboratory analyses and reporting shall be considered evidence of compliance with this chapter only if they conform to the following requirements:

- (a) PCM area air samples shall be analyzed and reported in accordance with the NIOSH 7400 method using “A” Counting Rules.
- (b) TEM area air samples shall be analyzed and reported in accordance with the mandatory or non-mandatory Electron Microscopy Methods set forth at 40 CFR Part 763, Subpart E, Appendix A.

(c) Bulk samples shall be analyzed and reported in accordance with Interim Method for the Determination of Asbestiform Materials in Bulk Insulation Samples found in 40 CFR Part 763, Subpart F, Appendix A as amended on September 1, 1982, or other methods approved by the National Institute of Standards and Technology, the National Institute of Occupational Safety and Health, the United States Environmental Protection Agency, or New York State Department of Health.

(d) Bulk and air sampling results/reports shall be submitted directly to the Department upon request within five calendar days.

§1-45 Action Criteria. (a) When visible emissions occur outside the work area, or any area air sample has indicated a determinant level of fiber concentrations greater than the larger of baseline levels or 0.01 f/cc, work shall stop for inspection.

(1) For large or small asbestos projects, the integrity of barriers, if disturbed, shall be restored. Clean-up of surfaces outside of the work area using HEPA vacuums or wet cleaning techniques shall be done prior to resuming abatement activities.

(2) For tent procedures, HVAC systems to or in the work area shall be shut down and the work area shall be wet cleaned or HEPA vacuumed until the area air samples indicate the fiber concentration is below the determinant level. If fiber concentrations remain above the determinant level for longer than 24 hours, isolation barriers and engineering controls shall be installed and maintained.

(b) *Clearance and/or reoccupancy criteria.* (1) The clearance criteria shall be applied to each homogeneous work area independently.

(2) For PCM analysis involved in alteration or renovation projects, the clearance air monitoring shall be considered satisfactory when every sample is less than or equal to 0.01 f/cc or less than the ambient concentration, whichever is larger.

(3) For TEM analysis, the clearance monitoring will be considered satisfactory if conducted in accordance with 40 CFR Part 763, Subpart E, Appendix A Section IV—Mandatory Interpretation of Transmission Electron Microscopy Results to Determine Completion of Response Actions.

(4) Clearance air monitoring results shall be submitted directly to the Department within 24 hours of request.

Subchapter E

Personnel Protection and Equipment Specifications

Part	1	Worker Protection
	2	Equipment Specifications

Part 1 *Worker Protection*

§1-51 Worker Protection Requirements. (a) Prior to project initiation, all workers engaged in abatement activities on an asbestos project or minor project must be certified by DEP.

(b) At least one asbestos handler supervisor shall be present at the work site while abatement activities are being conducted on an asbestos project or minor project, except that during minor projects the supervisor does not have to be physically present at all times but must be readily available.

(c) Personal protective equipment shall be worn by all individuals inside the work place during abatement activities, except that gloves need not be worn during those work place preparation activities which do not involve the disturbance of ACM.

Personal protective equipment shall meet the following specifications:

- (1) Disposable clothing including head, hand, foot and full body protection shall be provided by the contractor in sufficient quantities and adequate sizes for all workers and authorized visitors.
- (2) Hard hats, protective eyewear, gloves, rubber boots and/or other footwear shall be provided by the contractor as required for workers and authorized visitors. Safety shoes and hard hats shall be in accordance with ANSI Z89.1 (1969) and ANSI Z41.1 (1967).
- (3) Contaminated clothing shall be sealed in impermeable bags and the bags shall be appropriately labeled.

(d) Personal air monitoring shall be performed in accordance with current OSHA regulations. Such records shall be made available upon request to authorized Department representatives upon request.

(e) Personal Hygiene at the work site shall meet the following requirements:

- (1) There shall be no smoking on any floor of the building where abatement activities are taking place.

- (2) Jewelry, watches, and cellular telephones shall not be worn, carried, or kept in contaminated areas.
 - (3) The contractor shall provide clean change areas for the workers. Change areas shall be equipped with separate storage facilities for protective clothing and street clothing.
 - (4) If lunch areas are provided, they shall be located outside the work place in an area in which the airborne concentrations are below 0.01 f/cc.
 - (5) There shall be no eating, drinking, application of cosmetics, or chewing of gum or tobacco inside the work place. There shall be no food or beverages present in the work place.
 - (6) There shall be no lighters or matches in the work place.
- (f) The contractor shall have available the following information at the work place:
- (1) A copy of the U.S. Environmental Protection Agency Regulations for Asbestos, 40 CFR 61 Subparts A and M and a copy of OSHA Asbestos Regulations, 29 CFR 1926.1101, and 12 NYCRR Part 56; and
 - (2) A list of telephone numbers for local hospital, location of hospital and/or emergency squad, local fire department, the building owner (or representative) and the N.Y.C. Asbestos Control Program, and
 - (3) A copy of these Rules, the most recent Asbestos Abatement Notice (Form ACP-13), permits, any variance application (Form ACP-9) and DEP approval thereof, and
 - (4) A copy of all Material Safety Data Sheets (MSDS) for chemicals used during the asbestos project, and
 - (5) New York City Asbestos handler and supervisor certificates of all workers in the work site, and
 - (6) A copy of the current New York State Department of Labor asbestos handling license of the abatement contractor and air monitoring company.
 - (7) A copy of any asbestos survey performed in the affected building in accordance with these rules.
- (g) The contractor shall post signs during all abatement activities. Signs shall be posted at all approaches to the work place including internal doorways which provide access to the work place. These signs shall bear the following information:

**DANGER
ASBESTOS CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA**

(h) Warning labels shall be affixed to all waste containers containing asbestos material in and shall bear the following information:

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD**

Part 2
Equipment Specifications

§1-61 Materials and Equipment. The materials and equipment used during all abatement activities shall conform with the following:

(a) During abatement activities, replacement materials shall be stored outside the work area in a manner to prevent contamination. Materials required for the asbestos project (i.e. plastic sheeting, replacement filters, duct tape, etc.) shall be stored to prevent damage or contamination.

(b) When asbestos-containing material that has been used for fireproofing or insulation is removed, the replacement material shall comply with all applicable provisions of the New York City Administrative Code and regulations.

(c) For plasticizing, fire-retardant polyethylene sheeting with 6-mil thickness or greater, in sizes to minimize the frequency of joints, shall be employed.

(d) Duct tape and selected adhesive shall be capable of sealing joints of adjacent sheets of polyethylene, facilitating attachment of polyethylene sheets to finished or unfinished surfaces, and of adhering under both dry and wet conditions, including during the use of amended water.

(e) Airtight and watertight containers shall be provided to receive and retain any asbestos-containing waste materials. Plastic bags used for waste storage or disposal shall be a minimum of 6-mil in thickness. All containers shall be labeled in accordance with OSHA Regulation 29 CFR 1926.58K(2)(ii) and (iii).

(f) Materials used to enclose ACM shall be impact resistant and assembled to be airtight. Gypsum panels taped at the seams, tongue and groove boards, and boards with spline joints all qualify.

(g) Power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation. Abrasive removal methods, including the use of beadblasters, are prohibited.

(h) Ladders or scaffolds of sufficient dimension and quantity shall be available so that all work surfaces can be easily and safely reached by inspectors. Scaffold joints and ends shall be sealed with tape to prevent incursion of asbestos fibers.

(i) Electrical equipment shall be Underwriters Laboratory listed and approved.

(j) Surfactants, strippers, sealers, or any other chemicals used during the asbestos project shall be non-carcinogenic and non-toxic.

(k) Plastic sheeting used in the construction of temporary enclosures shall be fire-retardant in accordance with NFPA 701. Wood or other materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 255, ASTM D-2898, ASTM E84, and UL 723.

(l) Equipment and materials may be substituted for those specified in this chapter only if determined to be equivalent after review by the Department.

Subchapter F

Asbestos Project Procedures

- Part 1 Applicability**
- 2 Work Place Preparation**
- 3 Work Place Procedures**
- 4 Abatement Procedures**
- 5 Clean-up Procedures**

Part 1

§1-71 Applicability. In addition to §§1-01 through 1-61, the following sections 1-81 through 1-83, 1-91 through 1-94 and 1-111 and 1-112 shall apply to all asbestos projects. Sections 1-101 through 1-110 shall apply to all asbestos abatement activities.

Part 2

Work Place Preparation

- §1-81 General Work Place Preparation Requirements**
- §1-82 Worker Decontamination Enclosure System**
- §1-83 Waste Decontamination Enclosure System**
- §1-84 Small Asbestos Project Worker and Waste Decontamination Enclosure System**

§1-81 General Work Place Preparation Requirements.

The following procedures shall be followed during the conduct of abatement activities on asbestos projects. The procedures set forth in this subdivision shall be performed in the order set forth below:

(a) The building owner or designated representative shall provide notification to all occupants of the work place and immediate adjacent areas of the asbestos project. Information provided in the notification shall include contractor, project location and size, amount and type of ACM, abatement procedure, dates of expected occurrence and the Call Center “311” for government information and services. Postings of this notification shall be in English and Spanish, at eye level, in a conspicuous, well-lit place, at the entrances to the work place and immediate adjacent areas. The notice shall have the following heading: **NOTICE OF ASBESTOS ABATEMENT**, in a minimum of one inch sans serif, gothic or block style lettering, with the balance of the lettering of the notice to be of the same type lettering in a minimum of one quarter inch size. The notices shall be posted 7 calendar days prior to the start of the project and shall remain posted until clearance air monitoring is satisfactorily concluded. A lessee initiating an asbestos project shall give 10 calendar days notice to the owner of the subject building.

(b) A floor plan showing the areas of the building under abatement and the location of all fire exits in said areas shall be prominently posted in the building lobby or comparable location, along with a notice stating the location within the building of the negative air cutoff switch required under section 1-91(f) of these rules, if applicable.

(c) The work place shall be vacated by the occupants prior to work place preparation and until successful clearance air monitoring.

(d) Electric power to all work areas shall be shut down and locked out except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided in accordance with all applicable codes. Existing light sources (e.g. house lights) shall not be utilized. All power to work areas shall be brought in from outside the area through ground-fault circuit interrupter at the source.

(1) If electrical circuits, machinery, and other electrical systems in or passing through the work area must stay in operation due to health and safety requirements, the following precautions must be taken:

- (i) All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.
- (ii) Any energized circuits remaining in the work area shall be posted with a minimum two (2) inch high lettering warning sign which reads: DANGER LIVE ELECTRICAL - KEEP CLEAR. A sign shall be placed on all live covered barriers at a maximum of ten (10) foot intervals. These signs shall be posted in sufficient numbers to warn all persons authorized to enter the work area of the existence of the energized circuits.

(e) The worker decontamination enclosure system shall be installed or constructed prior to plasticizing the work area or before disturbing ACM.

(f) (1) Prior to erection of partitions, ACM that may be disturbed during this activity shall be:

- (i) removed using a tent procedure (including engineering controls); and/or
- (ii) treated via wet methods.

(2) Removal by the above procedures shall be limited to a maximum of a one foot wide strip running the length and/or height of the partition and is allowed only to facilitate erection of the partitions.

(g) All boilers and other equipment within the work area shall be shut down, locked out, and tagged out and the burner/boiler/equipment accesses and openings shall be sealed in accordance with §1-81(n) until abatement activities are complete. If the boiler or other exhausted

equipment will be subject to abatement, all breeching, stacks, columns, flues, shafts, and double-walled enclosures serving as exhausts or vents shall be segregated from the affected boiler or equipment and sealed airtight to eliminate potential chimney effects within the work area. Heating, Ventilation and Air Conditioning (HVAC) System Isolation methods are listed below in order of preference; the more complex and potentially problematic methods may be used when the more preferred procedures are impractical.

- (1) shut down and lock out HVAC systems and install isolation barriers (see §1-81(n)) to prevent contamination and fiber dispersal to other areas of the structure, or
 - (2) isolate locally and provide temporary HVAC, or
 - (3) positive pressurization of the HVAC system. This procedure shall be applied only under the direction and control of a professional engineer, or other knowledgeable licensed professional.
- (h) Abatement shall not commence until work place preparation has been completed.
- (i) Movable objects within the proposed work areas shall be pre-cleaned (i.e., prior to commencing general abatement) using HEPA filtered vacuum equipment and/or wet cleaning methods and such objects shall be removed from the work area. If carpeting is left in place, it shall be covered with fire retardant 6-mil plastic sheeting, and then $\frac{3}{8}$ in. rigid flooring prior to normal plasticizing.
- (j) All flammable materials shall be removed from the work area and all sources of ignition (including but not limited to pilot lights) shall be extinguished.
- (k) Fixed objects which will remain within the proposed work areas shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclosed with two layers of fire retardant 6-mil plastic sheeting sealed to protect from re-contamination. Sprinklers, standpipes, and other fire suppression systems shall remain in service and shall not be plasticized.
- (l) Any source of emergency lighting which is temporarily blocked as a result of work place preparation shall be replaced for the duration of the project by battery operated or temporary exit signs, exit lights, or exit path markings.
- (m) Prior to plasticizing, the proposed work areas shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning methods. Methods that raise dust, such as sweeping or vacuuming with equipment not equipped with HEPA filters, are prohibited.
- (n) The isolation barriers (i.e., sealing off of all openings, including but not limited to windows, corridors, doorways, barriers, skylights, ducts, grills, diffusers, and any other penetrations of the work place) shall be installed with two layers of fire retardant 6-mil plastic sheeting sealed with tape. All seams of HVAC or other system components that pass through the work place shall also be sealed.
- (o) The work area shall be segregated from the remainder of the work site by construction of temporary structural partitions as follows:

- (1) Partitions shall be constructed of conventional 2 x 3 (minimum) wood or metal stud framing, 16"CC maximum, to support barriers in all openings larger than 32ft², except where any one dimension is 1 foot or less, or where openings are exits covered in subdivision (p) below.
- (2) A solid construction material (e.g. fire rated plywood) of at least 3/8" thickness shall be applied to the work side of the framing. In secure interior areas where partitions are not subject to access from the public, an additional layer of fire retardant 6-mil plastic sheeting may be substituted for the solid construction material.
- (3) The partitions shall be caulked/sealed at the floor, ceiling, walls, joints and fixtures to form an airtight seal.
- (4) Where the opening is an exit covered in subdivision (s) below, or where the partition would block egress, the partition shall consist of two sheets of fire-retardant 6-mil plastic, prominently marked as an exit with signage so as to be visible both in normal light and in the event of a power failure. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress.
- (5) Means of egress shall not be obstructed by hardwall barriers.

(p) In addition to the isolation barriers, floor and wall surfaces shall be sealed with a minimum of two layers of fire retardant 6-mil plastic sheeting, except where the only ACM being abated in the project is vinyl asbestos floor tile or other flooring material, in which case the floor need not be sealed; or the only material being abated in the project is wall plaster or other wall material, in which case the walls need not be sealed. The plastic layers on the floor shall extend 6 inches up the walls. Walls shall be covered with plastic sheeting down to the floor level, thus overlapping the floor material by a minimum of 6 inches. There shall be a distance of at least 6 inches between seams of adjacent layers.

(q) After isolation barriers are in place, ceiling-mounted objects not previously sealed that will interfere with ACM abatement shall be removed and cleaned. Amended water spraying or HEPA filtered vacuum equipment shall be used during fixture removal to reduce fiber dispersal.

(r) Suspended ceiling tiles and T-grid components, contaminated by ACM, shall remain in place until the work area has been fully prepared as outlined in this section and electrical and HVAC systems have been shutdown. Suspended ceiling components shall be removed and disposed of as asbestos-containing waste or, if non-porous, retained for reuse after wet cleaning/HEPA vacuuming. Isolation barriers shall be installed in all openings above the ceiling before disturbance of ACM commences.

(s) Entrances to the work place that will not be used for worker entry or emergency exits shall be locked to prevent unauthorized entry.

(t) Exits from the work area shall be maintained, or alternative exits shall be established, in accordance with section 1027 of the New York City Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.

(u) Signs clearly indicating the direction of exits shall be maintained and prominently displayed within the work area. The signs shall bear a horizontal arrow or arrows indicating the direction to the exit, above which the word "EXIT" shall be printed in minimum 5" letter size.

(v) No smoking signs shall be maintained and prominently displayed within the work place. The signs shall be a minimum of 10 by 14 inches and shall bear the International "No Smoking" symbol, under which the words "NO SMOKING" shall be printed in minimum 2" letter size.

(w) Floor drains shall be sealed individually with two layers of fire retardant 6-mil plastic sheeting and tape, and then covered as all other floor surfaces. Pits, sumps, etc., shall be covered with adequate fire rated plywood sheeting and secured to floor slabs in a manner which prevents a tripping hazard, prior to required plasticizing.

(x) Elevators running through the work area shall conform to the following:

(1) The elevator door in the work area shall be enclosed with conventional 2 x 4 stud framing, covered with $\frac{3}{8}$ " fire rated plywood sheeting and sealed at all edges and seams. The barrier shall be covered and lapped for 8 inches with two layers of fire retardant 6-mil plastic sheeting adhered individually with edges taped for air tightness.

(2) Elevators not remaining in service shall have the fuses removed and the power switch locked in the open position.

(3) Elevators that remain in operation shall conform to the following additional procedures to minimize the piston effect that results:

(i) Elevator control shall be modified to bypass the work area.

(ii) A final larger layer of fire retardant 6-mil plastic sheeting is to be taped airtight but with slack forming a larger perimeter diaphragm. Air leakage across the barrier shall be corrected upon discovery, and the elevator shaft shall be checked for airborne asbestos contamination.

(iii) This system shall be smoke tested daily.

(4) Elevator shafts shall not be used as waste chutes.

(y) Adequate toilet facilities shall be provided in the vicinity of the clean room external to the work place. Where such facilities do not exist, portable service shall be provided.

(z) At least one functional fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.

§1-82 Worker Decontamination Enclosure System. The following procedures shall be followed during the conduct of abatement activities on asbestos projects:

(a) Worker decontamination enclosure systems shall be located outside the work area and attached to all locations where workers will enter or exit the work area. One system at a single location for each contained work area is preferred. These systems may consist of existing rooms outside of the work area, that offer direct access to the work area and general egress from the work place. When this situation does not exist, enclosure systems may be constructed or may consist of prefabricated or trailer units. Adequate heat and light shall be safely provided.

(b) The worker decontamination enclosure system shall consist of a clean room, a shower room, and an equipment room, in series, separated from each other by airlocks and from the work area and non-work place by curtained doors (see Illustration I).

(c) Worker decontamination enclosure systems shall be fully lined utilizing two layers of fire retardant 6-mil opaque plastic sheeting at a minimum, or the equivalent.

(d) When the decontamination enclosure is constructed outdoors or in areas with public access it shall be fully framed and fire retardant plywood sheathed or equivalent to prevent unauthorized entry. When located outdoors, it shall be waterproof and windproof.

(e) Prefabricated or trailer decontamination units:

- (1) shall at a minimum, have functionality and security equivalent to constructed decontamination enclosure facilities, and
- (2) shall be completely decontaminated prior to removal from the work site.

(f) The clean room:

- (1) shall contain secure crew lockers or shelves, and clean sealable plastic bags for storage of street clothes, and
- (2) shall contain shelves or appropriate facilities for storage of respirators, and
- (3) shall contain clean disposable clothing, replacement filters for respirators, towels and other necessary personal protective equipment, and
- (4) shall not be used for storage of tools, equipment or materials, other than personal protective equipment, nor used as office space, and
- (5) shall be equipped with a lockable door to secure the work place during off-shift hours.

(g) The shower room:

- (1) shall contain a minimum of one (1) shower per 6 workers calculated on the basis of the largest shift, and

- (2) shall have shower heads supplied with hot and cold water adjustable at the shower, and
- (3) shall be constructed to ensure against water leakage, and shall contain a rigid catch basin at least six (6) inches deep, and
- (4) shall contain liquid bath soap, shampoo, and clean dry towels in sufficient quantity for each worker for each showering.

(h) Shower water shall be continuously drained, collected and filtered through a system with a least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Pumps shall be installed, maintained and utilized in accordance with manufacturer's recommendations.

- (1) Filtered wastewater shall be discharged either to a sewer or drummed and then properly disposed.
- (2) Used filters shall be disposed of as asbestos-containing waste material.

(i) The equipment room:

- (1) shall be used for storage of equipment and tools used on the job that have been cleaned previously in the work area, and
- (2) may contain a limited supply of replacement filters (in sealed containers until used) for HEPA vacuums and pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement activity, and
- (3) shall contain labeled 6-mil plastic bags for collection of disposable clothing, and
- (4) shall be used to store contaminated footwear (e.g. rubber boots and other reusable footwear) and contaminated clothing for reuse for the duration of the abatement activity or until disposed.

§1-83 Waste Decontamination Enclosure System. The following procedures shall be followed for removal of asbestos-containing waste material and equipment during the conduct of abatement activities on asbestos projects:

(a) The waste decontamination enclosure system shall be located outside the work area and attached to all locations through which ACM waste will be removed from the work area. A waste decontamination enclosure system shall consist of two totally enclosed chambers and shall also comply with the following requirements:

- (1) the washroom shall be constructed with a curtained doorway to the work area and an airlock doorway to the holding area (see Illustration II); and be equipped with a

catch basin and a drain installed to collect and deliver wastewater to either the shower drain or to a separate holding vessel where it is filtered;

- (2) the holding area shall be constructed with a curtained doorway to the washroom and a lockable door to the outside (see Illustration II); if remote from the washroom, it shall comply with all applicable NYC Department of Sanitation regulations pursuant to Local Laws 70 of 1985 and 21 of 1987.

(b) Where there is only one means of egress from the work area:

- (1) the holding area of the waste decontamination enclosure system may branch off from the equipment/decontamination room (see Illustration III). Thus constructed, the equipment room alternates as a waste washroom. In this case the waste washroom shall be equipped with a catch basin and a drain, installed to collect and deliver wastewater to either the shower drain or a separate holding vessel from where it is filtered, or
- (2) where total asbestos-containing material disturbed in the asbestos project is less than 1,000 linear feet or 1,000 square feet, the shower room may be used as a waste washroom and shall be equipped as set forth in section 1-83(b)(1), and
 - (i) the clean room, in the configuration shown in Illustration I, may not be used for waste storage but may be used for waste transfer to carts, which are stored outside the clean room in a designated holding area.

(c) The waste decontamination enclosure system shall be constructed to meet the requirements of §§1-82 (a), (c), (d), (e), (g)(3) and (h).

§1-84 Small Asbestos Project Worker and Waste Decontamination Enclosure System.

The following alternative to §§1-82 and 1-83 shall be applicable for small projects only:

(a) The worker decontamination enclosure system shall consist of, as a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. Equipment storage, personal gross decontamination and removal of disposable clothing shall occur in the equipment room prior to entering the shower. All other requirements set forth in §1-82 and §1-92 shall apply.

(b) For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements set forth in §§1-83 and 1-93 shall apply.

Part 3
Work Place Procedures

§1-91	Engineering Controls
§1-92	Work Place Entry and Exit Procedures
§1-93	Equipment and Waste Container Decontamination and Removal Procedures
§1-94	Maintenance of Decontamination Enclosure Systems and Barriers

§1-91 Engineering Controls. The following procedures shall be followed during the conduct of abatement activities on asbestos projects:

- (a) All asbestos projects shall utilize negative pressure ventilation equipment.
 - (1) On all asbestos projects, a manometer shall be used to document the pressure differential. The manometer shall be installed and made operational once the negative pressure has been established in the work area. Magnahelic manometers shall be calibrated at least every six months, and a copy of the current calibration certification shall be available at the work site.
- (b) The negative pressure ventilation equipment shall operate continuously, 24 hours a day, from the establishment of isolation barriers through successful clearance air monitoring. If such equipment shuts off, adjacent areas shall be monitored for asbestos fibers.
- (c) A static negative air pressure of 0.02 inches (minimum) water column shall be maintained at all times in the work place during abatement to ensure that contaminated air in the work area does not filter back to uncontaminated areas.
- (d) If more than one ventilation unit is installed, units shall be turned on one at a time while checking the integrity of all barriers for secure attachment and the need for additional reinforcement.
- (e) A dedicated power supply for the negative pressure ventilating units shall be utilized. The negative air equipment shall be on a ground fault circuit interrupter (GFCI) protected circuit separate from the remainder of the work area temporary power circuits.
- (f) If the containment area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors the cut off switch shall be able to turn off the equipment on all floors.

(g) On loss of negative pressure or electric power to the negative pressure ventilating units, abatement shall stop immediately and shall not resume until power is restored and negative pressure ventilation equipment is operating again. When power failure or loss of negative pressure equipment lasts or is expected to last longer than one-half hour:

- (1) the make-up air inlets shall be sealed airtight, and
- (2) the decontamination systems shall be sealed airtight after the evacuation of workers and/or authorized visitors from the work area, and
- (3) all adjacent areas shall be monitored for asbestos fiber concentration upon discovery of, and subsequently throughout, the power failure.

(h) Negative pressure ventilation equipment shall be installed and operated to provide at least one air change in the work area every 15 minutes. Where there are no floor or wall barriers because floor or wall material is being abated, there shall be at least one air change in the work area every ten minutes.

(i) Openings made in the isolation barrier to accommodate these units shall be made airtight. The units shall remain within the work area unless located securely outside the building.

(j) Negative air pressure equipment shall be in compliance with ANSI Z9.2 (2006), Local Exhaust Ventilation.

(k) Negative air pressure systems shall be operated in accordance with “Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement, Guidance for Controlling Asbestos-Containing Materials in Buildings”, EPA Report Number 560/5-85-024 (1985).

(l) Negative pressure ventilation equipment shall be exhausted to the outside of the building away from occupied areas.

- (1) All openings (including but not limited to operable windows, doors, vents, air intakes or exhausts of any mechanical devices) less than 15 feet from the exterior exhaust duct termination location shall be plasticized or made airtight, or a second negative pressure ventilation unit with the primary unit’s capacity shall be connected in series prior to exhausting to the outside.
- (2) Negative pressure ventilation equipment shall exhaust away from areas accessible to the public.
- (3) All ducting shall be sealed and braced or supported to maintain airtight joints. Ducts shall be reinforced and shall be installed so as to prevent breakage. Damage to ducts must be repaired immediately.

(m) Where ducting to the outside is not possible, a second negative pressure ventilation unit compatible with the primary unit's capacity shall be connected in series. The area receiving the exhaust shall have sufficient, non-recycling exhaust capacity to the outside of the structure, and must be a normally non-occupied area.

(n) Careful installation shall be done to ensure that the ducting does not release fibers into uncontaminated building areas.

(o) Routine smoke testing, air monitoring and daily inspections shall be performed by the Asbestos Handler Supervisor to ensure that the ducting does not release fibers into uncontaminated building areas.

§1-92 Work Place Entry and Exit Procedures. The following procedures shall be followed during the conduct of abatement activities on asbestos projects:

(a) *Entrance procedures.* (1) All workers and authorized visitors shall enter the work area through the worker decontamination enclosure system.

(2) All individuals who enter the work area shall sign the log located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, owner, agents, contractor(s), the project, each work area and worker respiratory protection employed. The log shall be available for examination during abatement activities by the Department, the owner and the workers. A copy of the log shall be submitted directly to the Department within 48 hours of request.

(3) All individuals before entering the work area, shall be familiar with all posted regulations, personal protection requirements and emergency procedures. The log headings shall indicate, and the signatures shall be used to acknowledge, that the regulations and procedures have been reviewed and understood by all persons prior to entering the work area. The postings and log headings shall be in English and in the language of the majority of the asbestos handlers.

(4) All individuals shall proceed first to the clean room, remove all street clothing, store these items in clean sealable plastic bags or a locker and don personal protective equipment. Clean personal protective equipment shall be provided and utilized by each individual for each separate entry into the work area.

(b) *Exit procedures.* (1) Before leaving the work area, each individual shall remove the gross contamination from the outside of the respirators and protective clothing by wet cleaning, and/or HEPA vacuuming.

(2) In the equipment room, all personal protective equipment except respirators shall be removed. Disposable clothing shall be deposited into labeled containers for disposal. Reusable contaminated clothing, footwear, and/or head gear shall be stored in the equipment room when not in use.

- (3) Still wearing a respirator, each person shall proceed to the shower room, clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and then fully and vigorously shower and shampoo to remove residual asbestos contamination. Respirators shall be washed thoroughly with soap and water or a suitable sanitizing agent. Various types of respirators may require slight modification of these procedures.
- (4) After showering and drying, personnel shall proceed to the clean room and don clean disposable clothing if returning to the work area or street clothing if remaining outside the work area.

§1-93 Equipment and Waste Container Decontamination and Removal Procedures.

The following procedures shall be followed whenever equipment or containers are removed from the work area during an asbestos project:

(a) When the worker decontamination enclosure system shown in Illustration I alternates as a waste decontamination enclosure system, the clean room shall be considered a holding area during the period of active waste transfer only for the purpose of the loading of carts. Storage of waste and carts in the clean room is prohibited.

(b) Where the waste decontamination enclosure system is part of the worker decontamination enclosure system (see Illustration III), waste removal shall not occur during worker shift changes or when workers are showering or changing. Care shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.

(c) Where only one means of egress exists and the shower room is used as a waste washroom, workers are to be stationed in each room/area of the decontamination enclosure to transfer/process (see subdivisions (d), (h) and (I) of this section) the containers and equipment to or from adjacent sections. These workers are not to cross into the adjacent areas/rooms until the waste/equipment transfer is finished for that period and the workers have gone through decontaminations required by §1-92 of this chapter. The clean room/holding area workers shall have entered from uncontaminated areas with appropriate personal protective equipment; or prior to the start of waste transfer, these workers shall have exited the work area, fully decontaminated, and subsequently donned clean personal protective equipment.

(d) External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before transferring such items into the decontamination enclosure system. Contaminated workers shall not enter the washroom during this procedure.

(e) The cleaned containers of ACM and equipment shall be recontainerized (double-bagged) by either placing them in uncontaminated leak-tight plastic bags or sheeting as the item's physical characteristics demand while in the washroom of the waste decontamination enclosure system. Air volume shall be minimized and the bags or sheeting shall be sealed. Items that may puncture or tear the plastic bags or sheeting shall be placed in a hardwall container and sealed.

(f) The clean recontainerized items shall be moved into the airlock for subsequent transfer to the holding area. The washroom workers shall not enter this airlock or the work area until waste removal is finished for that period.

(g) Recontainerized items and cleaned equipment shall be removed from the airlock to the holding area by workers who have entered from uncontaminated areas with appropriate personal protective equipment.

(h) The recontainerized items of ACM and cleaned, bagged equipment shall be placed in open top, watertight plastic carts. These carts shall be held in the holding area pending removal. The carts shall be HEPA vacuumed or wet-cleaned following the removal of the containers of ACM from them.

(i) The exit from the waste decontamination enclosure system shall be secured to prevent unauthorized entry.

(j) The carts shall be stored in a holding area of the work site.

§1-94 Maintenance of Decontamination Enclosure Systems and Barriers. The following procedures shall be followed during the conduct of abatement activities on asbestos projects:

(a) All plastic barriers inside the work place and partitions constructed to isolate the work area from occupied areas shall be inspected by the asbestos handler supervisor at least twice per shift.

(b) Smoke tubes shall be used to test the integrity of the work area barriers and the decontamination enclosure systems daily at a minimum both before abatement activity begins and at the end of each shift. A visual inspection of the barriers, including the use of differential manometers, shall be considered acceptable as a back-up test.

(c) Damage and defects in the decontamination enclosure system shall be repaired immediately. The decontamination enclosure system shall be maintained in a clean and sanitary condition at all times.

(d) At any time during the abatement activity, if visible emissions are observed, or elevated asbestos fiber counts outside the work area are measured, or if damage occurs to barriers, abatement shall stop. The source of the contamination shall be located, the integrity of the barriers shall be restored, and visible residue shall be cleaned up using appropriate HEPA vacuuming and wet cleaning procedures immediately.

(e) Inspections, observations, and unusual incidents (e.g. barrier damage, contamination beyond the work area, etc.) shall be documented in the log by the asbestos handler supervisor.

(f) The daily inspection to ensure that exits have been checked against exterior blockage or impediments to exiting as per section 1-81(t) shall be documented in the log book.

(g) If exits are found blocked, abatement activities shall stop until the blockage is cleared.

Part 4
Abatement Procedures

§1-101	Applicability
§1-102	ACM Disturbance, Handling and Removal Procedures
§1-103	Encapsulation Procedures
§1-104	Enclosure Procedures
§1-105	Glovebag Procedures
§1-106	Tent Procedures
§1-107	Foam Procedure for Roof Removal
§1-108	Foam/Viscous Liquid Use in Flooring Removal
§1-109	Abatement from Vertical Exterior Surfaces
§1-110	Controlled Demolition With Asbestos In Place

§1-101 Applicability. The following §§1-102 through 1-110 inclusive shall apply to all abatement activities.

§1-102 ACM Disturbance, Handling and Removal Procedures. The following procedures shall be followed during the conduct of abatement activities:

(a) Abatement of asbestos-containing materials shall be by wet methods. ACM shall not be removed or disturbed without being adequately wet. Dry removal of asbestos-containing material is prohibited, unless EPA approval has been obtained. The EPA-approved alternate removal plan shall be submitted to the Department for approval a minimum of 15 days before work is scheduled to begin or begins. The plan shall explain and justify why ACM must be removed dry and how asbestos fibers will be controlled to prevent their release.

(b) When amended water is used, the ACM shall be sprayed with sufficient frequency and quantity for enhanced penetration. Sufficient time shall be allowed for penetration to occur prior to removal action or other disturbance taking place. Accumulation of standing or free water is prohibited. Fluffy materials shall be saturated. Non-hygroscopic materials, such as tremolite or amosite, shall be thoroughly wetted on all surfaces while work is being conducted.

(c) When used, removal encapsulants that minimize fiber generation and enhance penetration, shall be applied per manufacturer's specifications and in accordance with federal guidelines.

(d) ACM on detachment from the substrate is to be bagged directly or dropped onto a flexible catch basin and promptly bagged. Detached ACM is not permitted to lie on the floor for any period of time. Excess air in the bag shall be minimized and the bag shall be sealed. Non-hygroscopic materials shall not be dropped. ACM shall not be dropped from a height greater than 10 feet. Above 10 feet in height dust-free enclosed inclined chutes may be used. Vertical chutes are prohibited. Maximum inclination from horizontal shall be 60 degrees.

(e) Large components removed intact that cannot be containerized shall be maintained wet, wrapped (minimizing excess air) in at least one layer of fire retardant 6-mil polyethylene sheeting, and secured by sealing with tape.

(f) After completion of all stripping work, surfaces from which asbestos-containing materials have been removed shall be cleaned (e.g. wet-brushed and/or wet-cleaned) to remove all visible residue.

§1-103 Encapsulation Procedures. The following procedures shall be followed for the encapsulation of ACM:

(a) All material used for repair or encapsulation of asbestos-containing material shall have a flame spread rating, fireproofing, and smoke characteristics similar to the material being encapsulated. The encapsulate shall not alter the insulating characteristics of the material subject to encapsulation, and shall comply with current fire proofing standards and the encapsulate shall not add excess weight to the material increasing the potential that the material may lose cohesion or adhesion.

(b) Loose or hanging asbestos-containing materials shall be removed in accordance with the requirements of §1-102: “Disturbance, Handling, and Removal.”

(c) Only pigmented (non-transparent) encapsulants shown to be ratable as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA contract shall be used for encapsulation.

(d) The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon.

(e) Latex Paint with solids content greater than 15 percent may be used as an encapsulant only as follows:

(1) as a lockdown sealant for coating all non-metallic surfaces, or

(2) for sealing of cementitious ACM.

(f) Encapsulants shall be field tested prior to use by applying each to a small area to determine suitability of the material to be encapsulated.

(1) Testing is to occur only after the isolation barriers are in place.

(2) Testing shall be by the USEPA method specified in the appendix of “Guidelines for the Use of Encapsulants on Asbestos-Containing Materials” (June, 1981) or ASTM Standard Test Method E736-80. The encapsulated materials shall achieve a cohesive/adhesive strength of 100 lb/ft perpendicular to the surface.

(g) Application of bridging encapsulants over ACM shall provide the manufacturer’s specified number of inches or minimum dry film thickness.

(h) A different color for each coat of encapsulant (per manufacturer’s specifications) shall be used.

(i) Penetrating encapsulants shall be applied to penetrate existing asbestos-containing materials to the substrate. During treatment with a penetrating encapsulant, selected random core

samples of the asbestos-containing materials shall be removed to check the depth of penetration. The resulting space shall be treated as outlined (in subdivision (a)) above and re-encapsulated.

(j) Encapsulants shall be applied using airless spray equipment.

(1) Spraying shall occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

(2) Each subsequent coat of encapsulant shall be applied at a right angle to the preceding coat application or per manufacturer's specifications.

(k) Encapsulated asbestos-containing materials shall be identified (e.g. using labels, signs or color coding) in order to warn building maintenance personnel in the event encapsulated materials must be disturbed.

(l) The following maintenance procedures are recommended:

(1) A periodic inspection and maintenance program, consisting of an inspection at least annually to check for damage to all encapsulated surfaces. Recoating and repairs are to be performed according to procedures in this section.

(2) Maintenance of records by the building owner, on the locations and condition of the encapsulated material and on alteration, renovation, modification, or other procedures that resulted in disturbance of the encapsulated material.

(3) When conditions change and encapsulation is no longer an appropriate method, additional abatement methods should be conducted.

§1-104 Enclosure Procedures. The following procedures shall be followed for the enclosure of ACM:

(a) Loose and hanging asbestos-containing materials that may be disturbed during the installation of hangers or other support/framing materials for the enclosure shall be removed by wet methods in accordance with §1-102: "Disturbance, Handling, and Removal".

(b) After installation of hangers, brackets or other enclosure supports and before installation of enclosure materials, damaged areas of fireproofing/thermal insulation shall be repaired using a replacement material.

(c) Utilities' service components shall be lowered or removed as necessary and reinstalled in a manner which permits proper utilization and does not disturb the integrity of the enclosures.

(d) Enclosed asbestos-containing materials shall be identified (e.g., using a sign, label, or color coding) in order to warn building maintenance personnel in the event that the enclosure must be disturbed.

(e) The following maintenance procedures are recommended:

- (1) A periodic inspection and maintenance program, consisting of an inspection at least annually to check for damage to all enclosed surfaces. Re-enclosure and repairs are to be performed according to NYC Work Site Procedure regulations.
- (2) Maintenance of records by the building owner, on the locations and condition of the enclosed material and on alteration, renovation, modification, or other procedures resulting in disturbance of the enclosed material.
- (3) When conditions change and enclosure is no longer an appropriate method of asbestos abatement, additional abatement methods should be conducted.

§1-105 Glovebag Procedures. The following procedures shall be followed during the conduct of abatement activities:

(a) Glovebag procedures shall be done using commercially available glovebags of 6-mil clear plastic, appropriately sized for the project. Glovebag procedures may only be used in conjunction with the full containment of the work area (see §1-81) or the tent procedure (see §1-106). Glovebags may not be shifted and shall not be moved from the initial surface to another surface, or reinstalled on the initial surface once removed.

(b) The glovebag procedure shall be performed in accordance with the following:

- (1) All necessary tools and materials shall be brought into the work area before the glovebag procedure begins.
- (2) Air monitoring shall be conducted in accordance with §§1-31 through 1-45.
- (3) Glovebag procedures shall be conducted by workers specifically trained in glovebag procedures and equipped with appropriate personal protective equipment.
- (4) The insulation diameter worked shall not exceed one half the bag working length above the attached gloves.
- (5) The ACM within the secured glovebag shall be wetted with amended water prior to stripping.
- (6) The bag shall be attached over duct tape which has been placed securely around the insulation, forming a smooth seal. The bag shall be securely attached to the insulation in a manner to prevent air transfer.
- (7) After placement, each glovebag must pass a smoke test. The glovebag shall be placed under negative pressure utilizing a HEPA vacuum, and a smoke tube shall then be aspirated to direct smoke at all seams and seals from outside the glovebag. Any leaks detected by the smoke test shall be duct taped airtight.

- (8) If the insulation adjacent to the section which will be worked on is damaged, or if the insulation terminates or is jointed or contains an elbow adjacent to the work section, the adjacent insulation shall be wrapped in fire retardant 6-mil polyethylene sheeting and sealed airtight with duct tape.
 - (9) After the insulation has been removed, the surface shall be sprayed with amended water and brush-scrubbed to remove all visible ACM. The surface, the interior of the bag, the insulation and the tools shall then be sprayed with amended water. The enclosed volume shall be misted and time allowed for the mist to settle out before breaking the seal to remove the glovebag.
 - (10) Any insulation ends created by this procedure shall be:
 - (i) sealed with encapsulant prior to bag removal, or
 - (ii) thoroughly wetted before bag removal and sealed with wettable cloth end caps and spray glue or any combination of these materials immediately following bag removal.
 - (11) The tool pouch shall be separated from the bag prior to disposal by twisting it and the wall to which it is attached several times, and taping the twist to hold it in place, thus sealing the bag and the pouch which are severed at the midpoint of the twist. Alternatively, the tools can be pulled through with one or both glove inserts, thus turning the gloves inside out. The glove(s) is/are then twist sealed forming a new pouch, taped and several mid-seal forming two separate bags.
 - (12) A HEPA vacuum shall be used for evacuation of the glovebag in preparation for removal of the bag from the surface for clean-up in the event of a spill, and for post project clean-up.
 - (13) With the glovebag collapsed and the ACM in the bottom of the bag, the bag shall be twisted several times and taped to seal that section during bag removal.
 - (14) A 6-mil plastic bag shall be slipped around the glovebag while it is still attached to the surface. The bag shall be detached from the surface by removing the tape or cutting the top with blunt scissors.
 - (15) The asbestos-containing waste, the clean-up materials, and protective clothing shall be wetted sufficiently, double-bagged minimizing air content, sealed separately, and disposed of in conformance with §§1-93 and 1-102 of this chapter.
- (c) Reserved.
- (d) Glovebag procedures may only be utilized as part of a large or small asbestos project within full containment as set forth in section 1-81 of this chapter, or inside a tent constructed in accordance with section 1-106 of this chapter.

§1-106 Tent Procedures. Tent Procedures shall be conducted as follows:

(a) Tent procedures shall be limited to the removal of less than 260 linear feet and 160 square feet of ACM and shall not result in disturbance of ACM during tent erection. Tent procedures may be used as part of a large asbestos project only as provided for in section 1-81(f) or in conjunction with the glovebag procedure set forth in section 1-105 of these rules. Multiple tent enclosures may be used as part of a large asbestos project only in conjunction with the use of the glovebag procedure.

(b) Tent procedures shall be accomplished in a constructed or commercially available fire retardant plastic tent, plasticizing and sealing all surfaces not being abated within the tent periphery forming an enclosure. The tent shall be of fire retardant 6-mil plastic at a minimum, with seams heat-sealed, or double-folded, stapled and taped airtight and then taped flush with the adjacent tent wall. This is a single use barrier that shall not be reused once dismantled or collapsed.

(c) There shall be an airlock at the entrance to the tent, unless there is an attached worker or waste decontamination system.

(d) Asbestos handlers involved in the tent procedure shall wear personal protective equipment as specified in §1-51(c), plus a second disposable suit. All street clothes shall be removed and stored in a clean room within the work site. The personal protective equipment with two disposable suits shall be used for installation of the tent and throughout the procedure if a decontamination unit with a shower is not contiguous to the work area. If a decontamination unit (with shower and clean room at a minimum) is contiguous to the work area, only one disposable suit shall be required; in this case, prior to exiting the tent the worker shall HEPA vacuum and wet clean the disposable suit.

(e) The tent shall be attached to the surface to produce an airtight seal except for an appropriate section to allow for make-up air into the tent.

(f) Negative pressure ventilation equipment shall be used to continuously exhaust the enclosed area as specified under §1-91, Engineering Controls.

(g) Removal of ACM shall be by wet methods in accordance with §1-102.

(h) ACM removed shall be placed in a leak-tight container without dropping it.

(i) Upon completion of abatement, and prior to tent collapse, the enclosed surfaces shall:

(1) be wet cleaned using rags, mops or sponges; and

(2) be permitted sufficient time to dry, prior to HEPA vacuuming all substrates; and

(3) be lightly encapsulated to lockdown residual asbestos.

(j) Upon barrier disturbance, loss of engineering controls, or termination of tent usage, the tent and the enclosed surfaces shall be treated according to subdivision (i) above.

(k) The bagged waste shall be wet cleaned or HEPA vacuumed and then transferred outside the tent, double bagged, and appropriately handled prior to disposal.

(l) The outer disposable suit (if 2 suits are worn) shall be HEPA vacuumed in the tent prior to exiting. The outer disposable suit shall be removed in the airlock and a clean suit shall be worn over the inner suit. The workers shall immediately proceed to a shower at the work site. The inner disposable suit and respirator shall be removed in the shower after appropriate wetting. The disposable clothing shall be disposed of as asbestos-containing waste material. The workers shall then fully and vigorously shower with supplied liquid bath soap, shampoo, and clean dry towels.

(m) The negative pressure ventilation equipment shall be used to filter a minimum of 4 volume changes through the tent after completion of abatement but prior to collapse of the tent/barrier. All required air monitoring must be successfully completed before the tent/barrier is collapsed.

(n) The tent shall be collapsed inward, enclosing the contaminated clothing. This contaminated material shall be disposed of in another plastic bag. The HEPA vacuum shall be decontaminated and sealed.

(o) Glovebag procedures for removal of material within the tent for any sized project shall follow the rules set forth in §1-105.

§ 1-107 Foam Procedure for Roof Removal

(a) These procedures apply only to the removal of asbestos-containing roofing material (ACRM) from exterior roof surfaces. The work area on the roof shall be cordoned off with clearly visible barriers such as caution tape, and only authorized persons shall have access. All sections of these rules shall be followed in conjunction with this section with the exception of §1-81(m), §1-81(p), §1-91, §1-102(b), §1-112(d), and §1-112(e).

(b) The foam or viscous liquid shall be non-toxic, shall not require special respiratory protection for handling, and shall not affect the handling and disposal of the waste.

(c) The foam or viscous liquid shall coat and maintain a stable blanket (minimum 1" thickness) for the duration of the removal process and shall leave an identifiable colored residue when it dissipates.

(d) The foam or viscous liquid shall wet the ACRM. The ACRM shall be kept wet through the bagging process.

(e) Persons entering the work area shall wear correctly-fitting, good traction rubber boots.

(f) Abatement shall not be carried out during adverse weather conditions (e.g. precipitation, high winds, ambient temperature below 32 degrees Fahrenheit, etc.).

(g) The worker decontamination unit may be attached to each work area at an entry/exit from each work area in accordance with section 1-82, or may be remote, in which case the work

area shall be equipped with an airlock at the entrance. In addition to the shower head(s), the shower room shall be equipped with a flexible hose for waste decontamination for removal of less than 1,000 square feet of ACRM. For 1,000 square feet or more of ACRM removal, a separate waste decontamination facility as per section 1-83 shall be located at an entry/exit from each work area. Remote holding areas for the asbestos containing waste shall comply with Title 16, Chapter 8, Rules of the City of New York (16 RCNY 8 et seq.)

(h) Movable objects shall be removed from the work area, or kept in place and wrapped in one sheet of fire retardant 6 mil plastic sheeting.

(i) Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings shall be sealed with 2 layers of fire retardant 6 mil plastic or fitting with HEPA-filters when appropriate. Temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange instead of sealing vents, air intakes, etc, with 2 layers of plastic or HEPA-filters. Drains may be equipped with 5 micron filtering system in lieu of being sealed.

(j) Fixed objects including perimeter walls, bulkheads, cooling towers, ducts and other rooftop appurtenances shall be covered in one sheet of fire retardant 6 mil plastic up to a height of at least six feet.

(k) Prior to actual removal, the built-up roofing shall be blanketed and wetted with a minimum 1" coating of the acceptable foam or viscous liquid which shall be maintained for the duration of the removal until the material is bagged. The foam or viscous liquid shall be confined to the work area.

(l) Power tools used to drill, cut into, or otherwise disturb the ACRM shall be equipped with HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.

(m) Clean-up procedures shall include the removal and bagging of ACRM, the removal of all visible accumulations of asbestos containing waste, and the removal of all excess foam or similar viscous liquids. Following the removal of all debris, the work area shall be thoroughly wet cleaned.

(n) The work area shall be allowed to dry completely before the visual inspection is conducted. The project monitor and asbestos handler supervisor shall confirm the absence in the work area of ACM, asbestos-containing waste or debris, and foam or other viscous liquid.

(o) Upon successful visual inspection, all installed plastic sheeting shall be removed.

(p) Air monitoring shall be conducted in accordance with the relevant provisions of subchapter D of these rules.

§1-108 Foam/Viscous Liquid Use in Flooring Removal

(a) These procedures only apply to the removal of surface flooring material including vinyl asbestos floor tiles (VAT), ACM floor coverings (e.g., linoleum) and associated mastics and

adhesives, where the only ACM being abated in the work area is flooring material. All sections of these rules shall be followed in conjunction with this section with the exception of §1-81(m), §1-81(p), §1-91(c), §1-91(h), §1-102(b), §1-112(d), and §1-112(e).

(b) The foam or viscous liquid shall be non-toxic, shall not require special respiratory protection for handling, and shall not affect the handling and disposal of the waste.

(c) The foam or viscous liquid shall coat and maintain a stable blanket (minimum 1" thickness) for the duration of the removal process and shall leave an identifiable colored residue when it dissipates. The acceptable foam or viscous liquid shall be maintained for the duration of the removal until the material is bagged.

(d) The foam or viscous liquid shall coat and wet the ACM. The ACM shall be kept wet through the bagging process.

(e) Persons entering the work area shall wear correctly-fitting, good-traction rubber boots.

(f) Baseboards and wall surfaces up to a minimum height of four feet above the floor shall be covered with a layer of fire retardant 6-mil plastic sheeting. If hand power tools are used during the abatement, wall surfaces shall be covered with a layer of 6-mil polyethylene sheeting to a minimum height of six feet.

(g) Negative air pressure ventilation shall be provided to allow make-up air into the work area, and the air outlet from the work area shall be at or near the floor level.

(h) Clean-up procedures shall involve removal and bagging of the ACM, of visible accumulations of asbestos containing waste, and of all traces of foam or similar viscous liquid. Following the removal of all debris, the work area shall be thoroughly wet cleaned and HEPA-vacuumed.

(i) The work area shall be allowed to dry completely before the visual inspection is conducted. The project monitor and asbestos handler supervisor shall confirm the absence in the work area of ACM, asbestos-containing waste or debris, and foam or other viscous liquid.

(j) Upon successful visual inspection, plastic sheeting shall be removed from baseboards and wall surfaces. Isolation barriers shall remain in place.

(k) Air monitoring shall be conducted in accordance with the relevant provisions of subchapter D of these rules.

§ 1-109 Abatement from Vertical Exterior Surfaces

This section shall apply to projects involving the abatement of asbestos-containing materials from the vertical exterior surfaces (and associated horizontal surfaces, e.g. coping stones on top of a parapet wall) of a building or structure, including but not limited to the following materials:

Caulking or glazing compounds
Asphaltic mastic or tar (e.g., flashing on parapet walls)

Cement siding or shingles (including Transite)
Paints
Sealants for coping stone caps or clay roofing tiles

All applicable sections of these rules shall be followed in conjunction with this section except sections 1-81(p), 1-91, and 1-112(d, e, g, and h). .

(a) The work area shall be prepared as follows:

- (1) The entire surface to be abated and ground-level perimeter shall be considered the work area unless partitions and warning tape are used to define the work area, except that if the horizontal surface below the surface to be abated is not the ground (e.g., surface to be abated is inside parapet wall on roof), the horizontal surface underneath the abatement shall be considered the work area, not the ground.
- (2) A restricted area shall be established using warning tape extending at least 25 feet from the affected areas of the building or to the nearest vertical obstruction or the curb.
- (3) The restricted area may be entered only by certified workers or authorized visitors.
- (4) Before plasticizing, the restricted area shall be inspected for ACM debris and, if necessary, pre-cleaned using HEPA vacuums and wet methods.
- (5) All openings to the building or structure's interior which are within 25 feet of the affected ACM shall be closed and made airtight.
- (6) Scaffolding erected to access the ACM shall be constructed, maintained, and used in accordance with applicable federal, state, and city laws.
- (7) Elevated platforms being used to access the affected ACM shall be plasticized with two layers of fire-retardant 6-mil plastic, which shall extend up from the platform to at least the height of the mid-rail on three sides, and shall be attached directly to the building just below the surfaces under abatement.
- (8) The ground-level restricted area shall be cleared of all moveable objects and plasticized with two sheets of fire-retardant 6-mil plastic, which shall be extended one foot up the side of the building. The plasticized area shall be twenty-five feet wide, or to the curb. This plastic shall be cleaned, replaced, and disposed of as asbestos waste at the end of each shift.
- (9) Sidewalk bridges in the restricted area shall be covered with two layers of fire-retardant 6-mil plastic, placed over and secured to the bridge, spread across the full width, draped over the side to ground level, and extended to a width of at least thirty feet.

(b) A worker/waste decontamination system shall be constructed within the restricted area.

(c) Cleanup Procedure

- (1) The stripped substrate shall be HEPA vacuumed and wet-wiped.
- (2) A visual clearance inspection shall be conducted by the asbestos handler supervisor and project monitor after the work area dries, to ensure the absence of ACM residue or debris in the work area.

- (3) After the inspection is completed, the warning tapes and barriers may be removed.
- (4) The clearance inspection shall be documented in the log and the project air sampling log.
- (d) Air monitoring shall be conducted in accordance with the relevant provisions of subchapter D of these rules.
- (e) Abatement shall not be performed under this section during adverse weather conditions (e.g. precipitation, high winds, ambient temperatures below 32 degrees Fahrenheit, etc.).
- (f) Power tools used to drill, cut into, or otherwise disturb ACM shall be equipped with HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.

§1-110 Controlled Demolition with Asbestos in Place. (a) A building or structure may be demolished with asbestos in place only if the building is in imminent danger of collapse as set forth in section 28-215.1 of Title 28 of the Administrative Code and/ or 56 NYCRR 11.5(c).

- (b) A copy of the condemnation letter shall be provided to DEP.
- (c) The demolition shall be performed in accordance with section 28-215.1 of Title 28 of the Administrative Code and/or 56 NYCRR 11.5 (c).

Part 5

Clean-up Procedures

- §1-111 Preliminary Clean-up Procedures**
- §1-112 Additional Clean-up Procedures (Final)**

§1-111 Preliminary Clean-up Procedures. The following clean-up requirements shall be followed during the conduct of abatement activities on asbestos projects:

- (a) (1) All waste generated shall be bagged, wrapped or containerized immediately upon removal. The personal and waste decontamination enclosure systems and floor and scaffold surfaces shall be HEPA vacuumed and wet cleaned at the end of each work shift at a minimum.
- (2) Visible accumulations of asbestos-containing waste material shall be containerized utilizing non-metallic dust pans and non-metallic squeegees or HEPA vacuums.
- (3) Metal shovels shall not be used to pick up or move accumulated asbestos-containing waste material or any other debris in the vicinity of isolation or surface barriers.

(b) The waste decontamination enclosure system shall be wet cleaned twice using wet cleaning methods upon completion of waste removal. When the worker decontamination enclosure shower room alternates as a waste container wash room, the shower room shall be washed immediately with cloths or mops saturated with a detergent solution prior to wet cleaning.

(c) The worker decontamination enclosure system shall be wet cleaned/HEPA vacuumed, as appropriate, after each shift change and meal break.

(d) Excessive water accumulation or flooding in the work area shall require work to stop until the water is collected and disposed of properly.

§1-112 Additional Clean-up Procedures (Final). Additional clean-up procedures shall be performed in the order set forth below prior to commencement of clearance air monitoring.

(a) After removal of visible accumulations of asbestos-containing waste material, a HEPA vacuuming shall be performed on all surfaces. To pick up excess water and gross saturated debris, a wet-dry shop HEPA vacuum, dedicated to asbestos abatement, may be used.

(b) All surfaces in the work area shall be wet cleaned (first cleaning).

(c) A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

(d) After the first cleaning, the work area shall be vacated for 12 hours to allow fibers to settle.

(e) The cleaned and encapsulated layer of the surface barriers shall be removed from the walls and floors.

(f) All objects and surfaces in the work area shall be HEPA vacuumed and wet cleaned a second time.

(g) After the second cleaning, the work area shall be vacated for 4 hours.

(h) The remaining plastic barriers shall be removed from the walls and floors. All objects and surfaces in the work shall be HEPA vacuumed and wet cleaned a third time.

(i) As a prerequisite to commencement of clearance air monitoring, a thorough visual inspection shall verify the absence of asbestos-containing waste material (e.g. dust).

(j) All containerized waste shall be removed from the work area through the decontamination enclosures and the holding area.

(k) All tools and equipment shall be removed from the work area and decontaminated in the waste decontamination enclosure system. Cloths, mops, and other cleaning aids shall be disposed of as asbestos-containing waste material.

(l) After successful clearance air monitoring (see §1-31 et seq.), the isolation barriers shall be removed in conjunction with the use of a HEPA vacuum.

(m) Within 21 days of the completion of all steps set forth above, including successful clearance air monitoring, a project monitor's report shall be submitted to DEP on a DEP-approved form. This report shall be based on an inspection performed after the completion of all steps listed in this section, and shall not be based on the visual inspection performed prior to the commencement of clearance air monitoring. The project monitor who prepares the report shall be independent of the abatement contractor. If a project is being performed on multiple floors of a building, a separate project monitor's report may be submitted as each floor is completed. Failure to comply with this subdivision shall be the responsibility of the building owner.

Subchapter G

Pre-Demolition Abatement Activity Procedures

- 1. Applicability**
- 2. Work Procedures**

Part I *Applicability*

§1-120 Applicability of Regulations to Pre-Demolition Abatement Activities. The following regulations shall apply to pre-demolition abatement activities:

§§1-01 through	1-61	General Regulations
	1-82	Worker Decontamination Enclosure System
	1-83	Waste Decontamination Enclosure System
1-91 through	1-94	Work Place Procedures
	1-102	ACM Disturbance, Handling and Removal Procedures
	1-105	Glovebag Procedure
	1-106	Tent Procedure
	1-107	Foam Procedure for Roof Removal
	1-108	Foam/Viscous Liquid Use in Flooring Removal
	1-109	Abatement from Vertical Exterior Surfaces
1-120 through	1-128	Pre-Demolition Abatement Activity Procedures

Part II
Work Procedures

§ 1-125	Work Area Preparation
§ 1-126	ACM Procedures: Order of Work
§ 1-127	Clean-Up Procedures During Abatement
§ 1-128	Clean-Up Procedures: Preparation for Clearance Air Monitoring

§ 1-125 Work Area Preparation. The following work area preparation shall be followed during the conduct of pre-demolition abatement activities:

(a) Prior to the start of abatement activities, the building owner or designated representative shall post a general notification at all main entrances to the structure. Postings of this notification shall be in English and Spanish, at eye level in a conspicuous well-lit place that can be viewed by the public without obstruction. Information provided in the notification shall include contractor, project location, that the project is regulated by NYC DEP, and the Call Center “311” for government information and services. The notice shall have the following heading: NOTICE OF ASBESTOS ABATEMENT, in a minimum of 2 inches sans serif, gothic or block style lettering, with the balance of the lettering of the notice to be of the same type lettering in a minimum of 1 inch size. The notification shall be posted throughout all abatement activities.

(b) The building shall be vacated prior to the start of abatement activities.

(c) Electric power to all work areas shall be shut down and locked out. Safe temporary power and lighting shall be provided in accordance with all applicable NYC Code(s) and Regulations. Existing light sources (e.g., house lights) shall not be utilized. All power to a work area shall be brought in from outside the area through ground-fault interrupter at the source.

(d) The worker decontamination enclosure system shall be installed or constructed prior to plasticizing the work area and before disturbing ACM. The waste decontamination enclosure system shall be installed or constructed prior to commencement of abatement. The area in which there systems are located shall require HVAC system isolation and plasticizing of electrical outlets and equipment that are within 6 inches of floor level.

(e) Heating, Ventilation and Air Conditioning (HVAC) System shall be shut down and locked out. Isolation barriers shall be installed to prevent interior duct work contamination.

(f) Abatement shall not commence until work place preparation has been completed.

(g) Methods that raise dust, such as sweeping or vacuuming with equipment not equipped with HEPA filters, are prohibited.

(h) Objects which can be removed from the work area prior to abatement without disturbing ACM shall be pre-cleaned using HEPA-filtered vacuum equipment and/or wet cleaning.

(i) The isolation barriers (i.e. sealing off of all openings, including but not limited to windows, corridors, doorways, barriers, skylights, ducts, grills, diffusers, and any other penetrations of the work areas) shall be installed with 2 layers of fire retardant 6-mil plastic sheeting separately sealed with tape. All seams of HVAC or other system components that pass through the work area shall also be sealed. Chimney effects in stacks, columns, flues, shafts, double-walled enclosures, etc., that impact the work area, shall be eliminated by sealing the accesses with solid material covered with a double layer of 6-mil plastic sealed with tape.

(j) Cinderblock and porous construction materials shall be covered with one layer of fire retardant 6-mil plastic sheeting, sealed at edges and seams.

(k) Flooring within the area shall be water-tight.

(l) Suspended ceiling tiles and T-grid components in proximity to ACM shall remain in place until the work area has been fully prepared as outlined in this section and electrical and HVAC systems have been shut down. Contaminated suspended ceiling components shall be removed prior to abatement and treated with a penetrating encapsulant.

(m) Required means of egress, including emergency and fire exits, shall be maintained at all times during abatement activities except as otherwise provided pursuant to section 3303 of the New York City Building Code. Exits shall be checked daily against blockage or impediments to exiting.

(n) Entrances to the work area that will be used for worker entry or emergency exits shall be locked against unauthorized entry.

(o) Elevators running through the work area shall conform to the following:

(1) The elevator door in the work area shall be enclosed with conventional 2 x 4 stud framing, covered with $\frac{3}{8}$ " fire rated plywood sheeting and sealed at all edges and seams. The barrier shall be covered and lapped for 8 inches with two layers of fire retardant 6-mil plastic sheeting adhered individually with edges taped for airtightness.

(2) Elevators not remaining in service shall have the fuses removed and the power switch locked in the open position.

(3) Elevators that remain in service shall conform to the following additional procedures to minimize the piston effect that results:

(i) Elevator control shall be modified to bypass the work area.

(ii) A final larger layer of fire retardant 6-mil plastic sheeting is to be taped airtight but with slack forming a larger perimeter diaphragm. Air leakage across the barrier shall be corrected upon discovery, and the elevator shaft shall be checked for airborne asbestos contamination.

(iii) This system shall be smoke tested daily.

- (p) Adequate toilet facilities shall be provided in the vicinity of the clean room external to the work place. Where such facilities do not exist, portable service shall be provided.

§1-126 ACM Procedures: Order of Work. No ACM removal shall be performed in a building concurrently with the full demolition of such building or with the removal of one or more stories of such building, except as otherwise provided in these rules pursuant to Sections 1-03 and 1-26. This subsection shall not apply to emergency work being performed pursuant to article 215 of chapter 2 of title 28 of the administrative code.

§1-127 Clean-up Procedures during Abatement. The following clean-up procedures shall be followed during conduct of pre-demolition abatement:

- (a) (1) All waste generated shall be bagged, wrapped, or containerized immediately upon removal. The personal and waste decontamination enclosure systems shall be HEPA vacuumed and wet cleaned at the end of each work shift at a minimum.
- (2) Visible accumulations of asbestos-containing waste material may be containerized utilizing rubber dust pans and rubber squeegees or HEPA vacuums. Metal shovels may also be used EXCEPT in the vicinity of isolation or surface barriers which could be perforated by these tools.
- (b) The waste decontamination enclosure system shall be wet cleaned twice using wet cleaning methods upon completion of waste removal. When the worker decontamination enclosure shower room alternates as a waste container wash room, the shower room shall be washed immediately with cloths or mops saturated with a detergent solution prior to wet cleaning.
- (c) The worker decontamination enclosure system shall be wet cleaned/HEPA vacuumed, as appropriate, after each shift change and meal break.
- (d) Excessive water accumulation or flooding in the area shall require work to stop until the water is collected and disposed of properly.

§1-128 Clean-up Procedures: Preparation for Clearance Air Monitoring. The following final clean-up procedures for pre-demolition abatement shall be performed prior to commencement of clearance air monitoring:

- (a) All visible accumulations of asbestos-containing waste material shall be removed and containerized. Metal shovels may be used to pick up or move accumulated waste EXCEPT in the vicinity of plastic sheet isolation and surface barriers which could be perforated by these tools. The areas around the plastic sheet isolation barriers shall be cleaned of visible accumulations utilizing rubber dust pans and rubber squeegees. To pick up excess water and gross wet debris, a wet-dry shop HEPA vacuum dedicated to asbestos abatement may be used.
- (b) All containerized waste shall be removed from the work area through the decontamination enclosures and the holding area.

(c) All surfaces in the work area shall be wet cleaned using rags or mops. After allowing sufficient time for drying of the work area, HEPA vacuums shall be used to thoroughly clean all surfaces after gross clean-up.

(d) Where porous construction materials or cinder block-like materials have been plasticized for surface barrier containment, the plastic sheeting shall be cleaned as in subdivision (c) above, then sprayed with a lockdown encapsulant and removed when dry.

(e) All surfaces in the work area which were not the subject of removal or abatement shall be sprayed with a lockdown encapsulant, which upon drying will not dissolve upon rewetting. Sufficient time for drying shall be allowed.

(f) All tools and equipment shall be removed from the work area and decontaminated in the equipment decontamination enclosure system.

(g) After successful clearance air monitoring (see §1-31 et seq.) the isolation barriers shall be removed in conjunction with the use of a HEPA vacuum.

(h) Within 21 days of the completion of all steps set forth above, including successful clearance air monitoring, a project monitor's report shall be submitted to DEP on a DEP-approved form. If a project is being performed on multiple floors of a building, a separate project monitor's report may be filed as each floor is completed.

Large Asbestos Project (Small Asbestos Project Option) Worker Decontamination Enclosure System

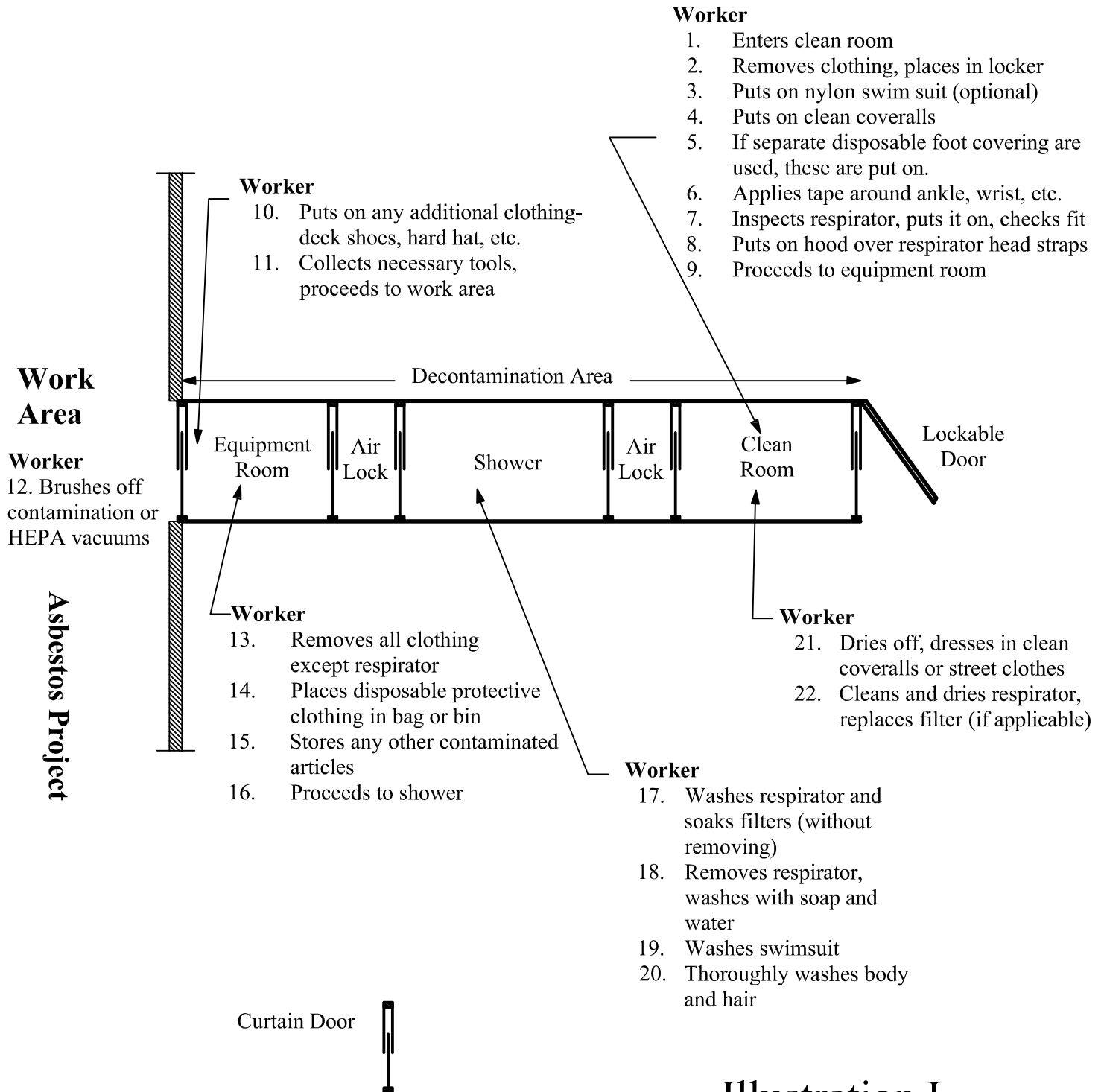


Illustration I

Large Asbestos Project
(Small Asbestos Project Option)
Waste Decontamination Enclosure System

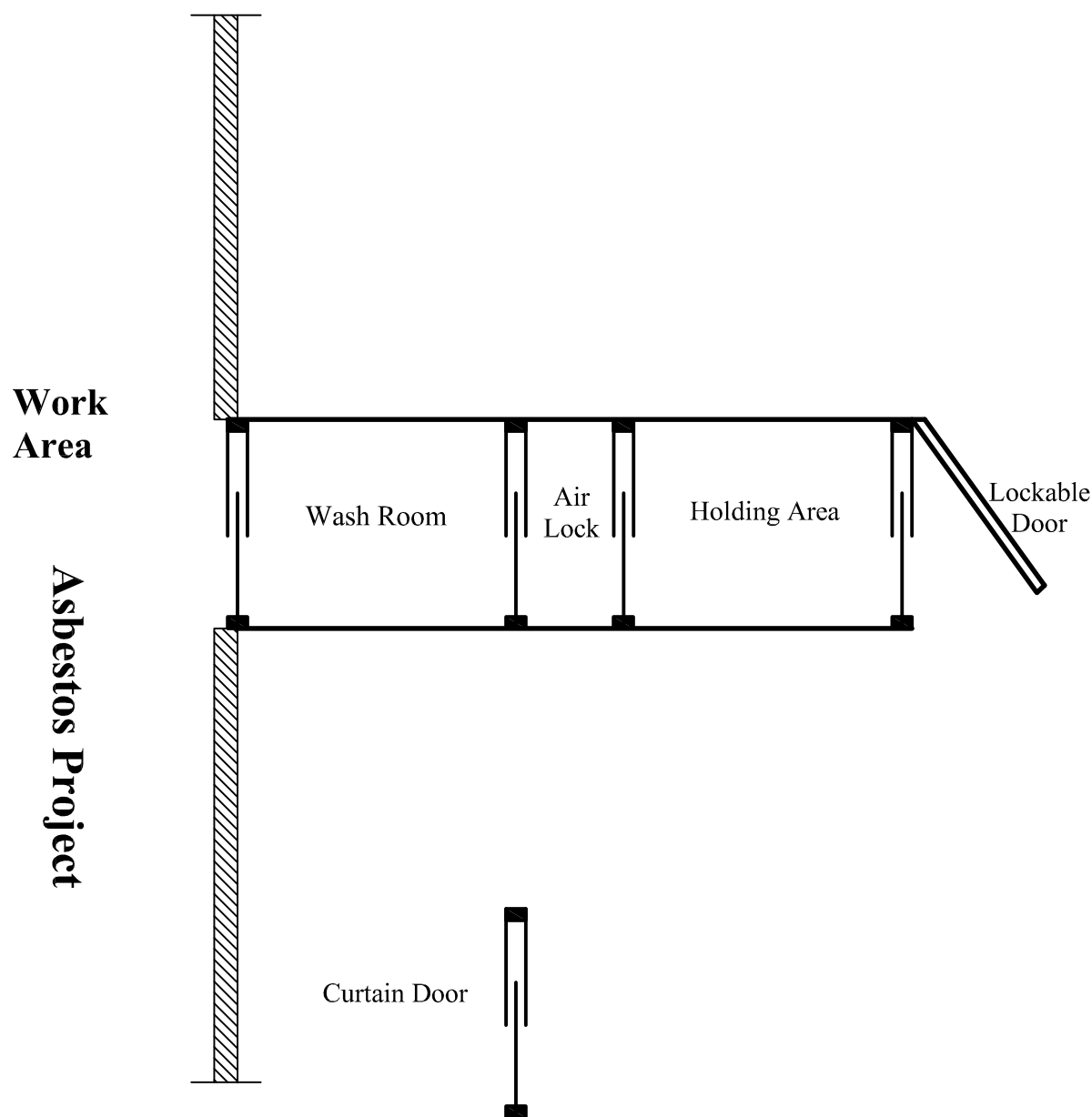


Illustration II

Large Asbestos Project (Small Asbestos Project Option)

Parallel Worker and Waste Decontamination Enclosure Systems

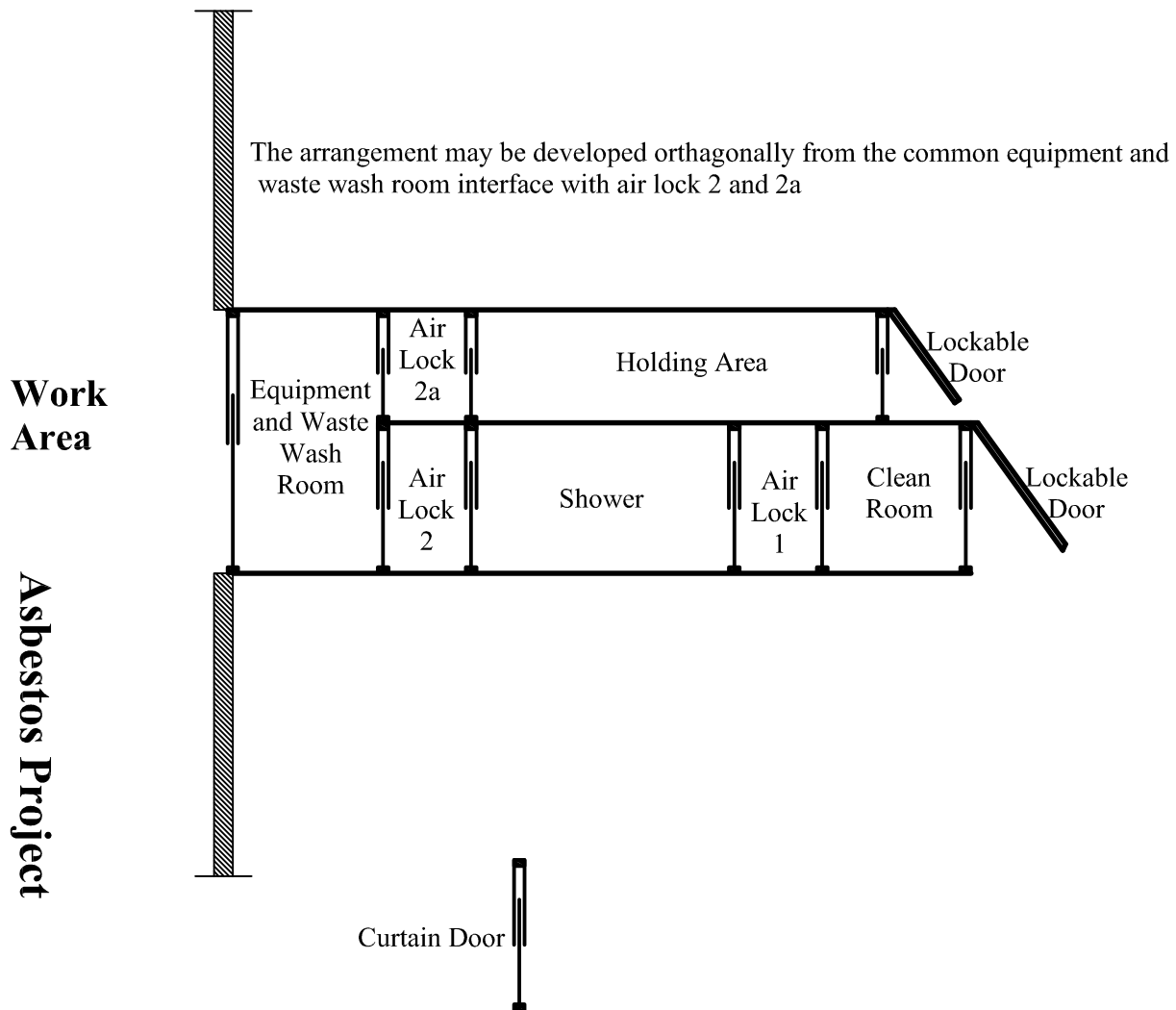


Illustration III



ASBESTOS TECHNICAL REVIEW

A Guide to the
New York City Asbestos Regulations

First Edition, October 2009



Michael R. Bloomberg
Mayor
Edward Skyler
Deputy Mayor for Operations

Department of Environmental Protection

Steven W. Lawitts
Acting Commissioner

Department of Buildings

Robert LiMandri
Commissioner

New York City Fire Department

Nicholas Scoppetta
Fire Commissioner

The Asbestos Technical Review Unit

Contact Information:

Telephone:

(718) 595 - 3048

Email:

ARTSfeedback@dep.nyc.gov

Web:

NYC.gov/dep

DEP Staff:

Krish Radhakrishnan, P.E.

Director

Asbestos Control Program

Steven A. Camaione, P.E.

Deputy Director

Asbestos Control Program

Carlstien Lutchmedial

Director

Enforcement Unit

Peter Lee Kim

Director

Asbestos Technical Review Unit

DOB Staff:

Marshall A. Kaminer, PE

Borough Commissioner, Staten
Island

Bharat Gami, RA

Chief Plan Examiner

Asbestos Technical Review Unit

TABLE OF CONTENTS

Introduction	1
SECTION 1 Notifying DEP of an Asbestos Project	2
SECTION 2 The New Asbestos Project Notification Form	14
SECTION 3 Maintaining Proper Egress	20



Introduction

In 2009, the City enacted a number of new laws to ensure that asbestos abatement is conducted safely. These laws impact the ways that asbestos projects are filed, approved and inspected, and involve new levels of cooperation among the agencies that oversee asbestos and construction safety: the Department of Environmental Protection (DEP), the Department of Buildings (DOB) and the Fire Department (FDNY).

The purpose of this guide is to explain the new laws and help building owners, builders and abatement contractors working in New York City.

This guide is divided into three sections:

1. A review of the entire asbestos abatement process from before filing to after close-out.
2. A detailed explanation of the new Asbestos Project Notification (Form ACP7).
3. Guidance for contractors about how to maintain proper egress at asbestos abatement/construction sites.

1 Notifying DEP of an Asbestos Project

The asbestos abatement process has five phases:

1. Pre-abatement Activities
2. Notifying DEP of an Asbestos Abatement Project
3. Project Review
4. Conducting Abatement
5. Close-out

1. PRE-ABATEMENT ACTIVITIES

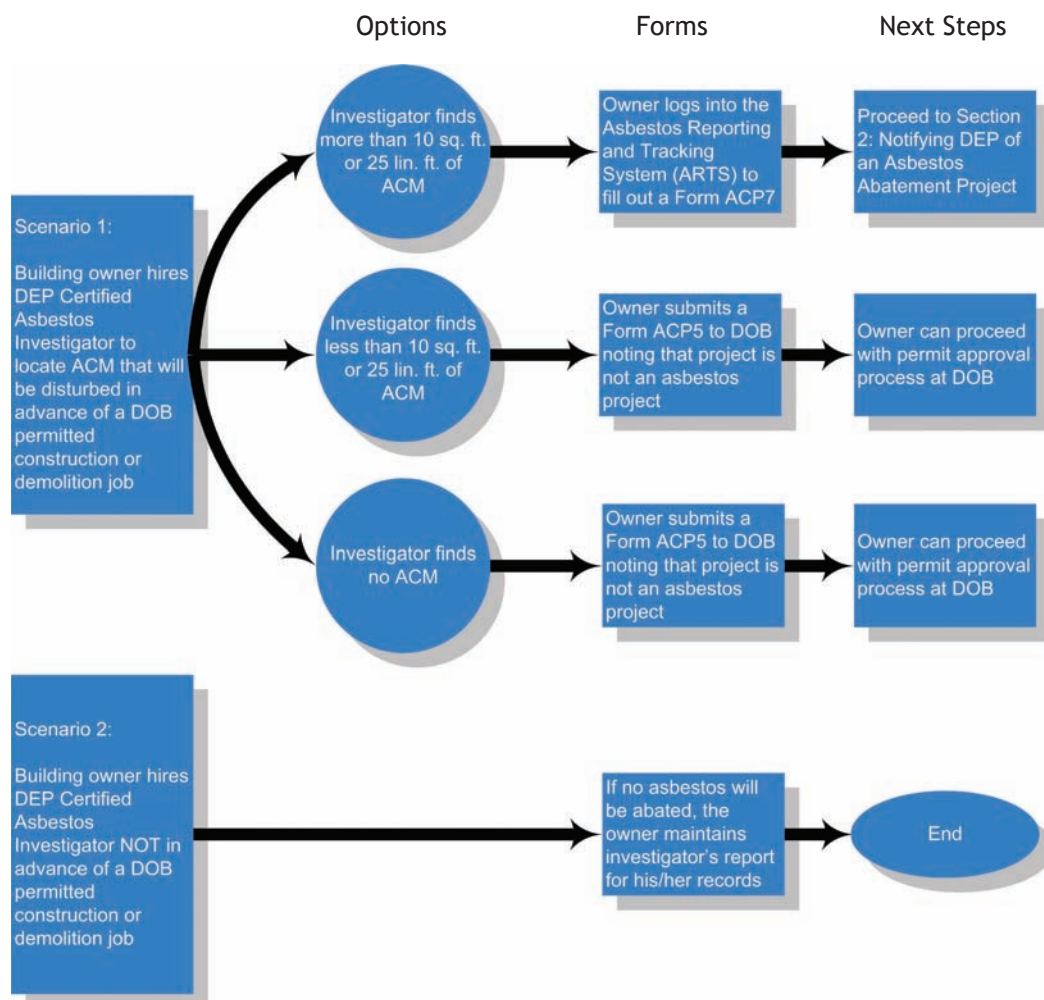
The pre-abatement activities begin when you hire a DEP-certified asbestos investigator to survey a building. These investigators are experts at identifying Asbestos Containing Material (ACM) and calculating the square feet and or linear feet of an abatement project. You may conduct an investigation as part of a construction project,ⁱ or you may just want to know if there is asbestos in your building. Whatever your reason, the investigator's report will determine the amount of ACM.

The asbestos investigator will find that your project is either “Not an Asbestos Project (A)” or an “Asbestos Project (B).”

A. Asbestos Assessment Report (Form ACP5)

If the asbestos investigator finds that less than 10 square feet or 25 linear feet of Asbestos Containing Material (ACM) will be disturbed, the project is considered “Not an Asbestos

Fig. 1: Pre-Abatement Activities



Project.” Even though such a project is termed “Not an Asbestos Project,” asbestos must still be abated in accordance with all relevant laws. However, there is no need to file any paperwork with DEP for a minor project. The ACP5 could also certify that you’re not going to disturb any ACM during your construction job or that the premises is free of any ACM. Once DOB receives the Form ACP5, DOB may proceed with the DOB permitting process.

Note: You must follow all the relevant laws and rules for asbestos abatement even when you remove minor amounts of ACM.

B. Asbestos Project Notification (Form ACP7)

If the asbestos investigator finds that an amount of ACM greater than 10 square feet or 25 linear feet will be disturbed, the job is considered an “Asbestos Project” and you must submit an Asbestos Project Notification (Form ACP7) to DEP. If the asbestos abatement is part of a construction job, DOB will not issue a permit and construction may not begin until you complete the steps outlined in this guidance document and DOB receives a DEP Asbestos Project Completion Form indicating that the abatement is complete.

2. NOTIFYING DEP OF AN ASBESTOS ABATEMENT PROJECT

An asbestos project is defined as the abatement of more than 10 square feet or 25 linear feet of asbestos containing material. Under the law governing asbestos abatement, if you are conducting an asbestos project in New York City, you must notify DEP and follow all its rules and regulations.

The Asbestos Reporting and Tracking System (ARTS)

If you have an “Abatement Project,” you will need to fill out an Asbestos Project Notification (Form

ACP7). You can do this by logging on to ARTS, the Asbestos Reporting and Tracking System. ARTS is the new central location for building owners and contractors to manage abatement job notifications. ARTS is accessible from DEP’s website (www.nyc.gov/dep) and, in addition to using it to electronically submit an Asbestos Project Notification, you can also use ARTS to request a variance, submit an amendment or print any form submitted to DEP. If you are undertaking an asbestos abatement job that requires a review and permit from the Asbestos Technical Review Unit (A-TRU), you can use ARTS to receive objections and approvals during your permit review.

The online Form ACP7 has been revised, and now features a number of new questions. In addition to questions about the abatement contractor, the asbestos hauler, and the independent air monitor, the new Form ACP7 asks a number of detailed questions about conditions in the abatement work area. You should consult a licensed asbestos abatement contractor to help fill out the form. However, you can begin filling out the Form ACP7 even if you don’t know all the information because ARTS allows you to save your applications. That way, even if you can’t answer a question, you can save the document and come back to it at another time.

After you submit the Abatement Project Notification online, you are still not ready to begin abatement activities. Every applicant who submits a Form ACP7 must print the ACP7, sign the signature page to attest that everything on the form is truthful, and then obtain signatures from the building owner, the asbestos abatement contractor and the project’s independent air monitor. By signing the Form ACP7, the asbestos abatement contractor, building owner or other party is attesting to the accuracy of the information, so they should be sure to read through the application carefully before signing. When all signatures have been obtained, you will be ready to bring the ACP7, including the

signature page and any required feesⁱⁱ to DEP to file your abatement project. DEP will then issue you an “Asbestos Abatement Notice” that must be posted at the workplace.

In some cases, the submission of the Form ACP7 will also involve a review to approve a variance or an Asbestos Work Permit.

Asbestos Variance Application (Form ACP9)

If you believe that you will be unable to comply with all the applicable City and State rules and regulations related to asbestos abatement, you may apply for a variance. You will need to submit an “Asbestos Variance Application” (Form ACP9) along with your Form ACP7. The Form ACP9 can also be completed using ARTS.

Asbestos Work Permit

You will also need to submit additional materials if you need a permit from the Asbestos Technical

Review Unit. The ACP7 has a new section called “Project Details” and your answers to the questions in this section may determine that your project poses certain safety risks. In these cases, the application will need to undergo a review to ensure that you are taking appropriate safety precautions during the abatement. This review, conducted by A-TRU, may sometimes require you to hire a registered architect or professional engineer to create a Work Place Safety Plan to show how you will maintain safety throughout the course of the work. When the review is finished and A-TRU has concluded that the project will meet safety requirements, DEP will issue you an Asbestos Work Permit. That permit must be prominently posted in the entrance of the building where abatement is taking place, with additional copies posted directly outside each permitted asbestos containment area.

As soon as you submit your ACP7 online, an electronic copy of your completed ACP7 will pop up on your computer screen. The first page of



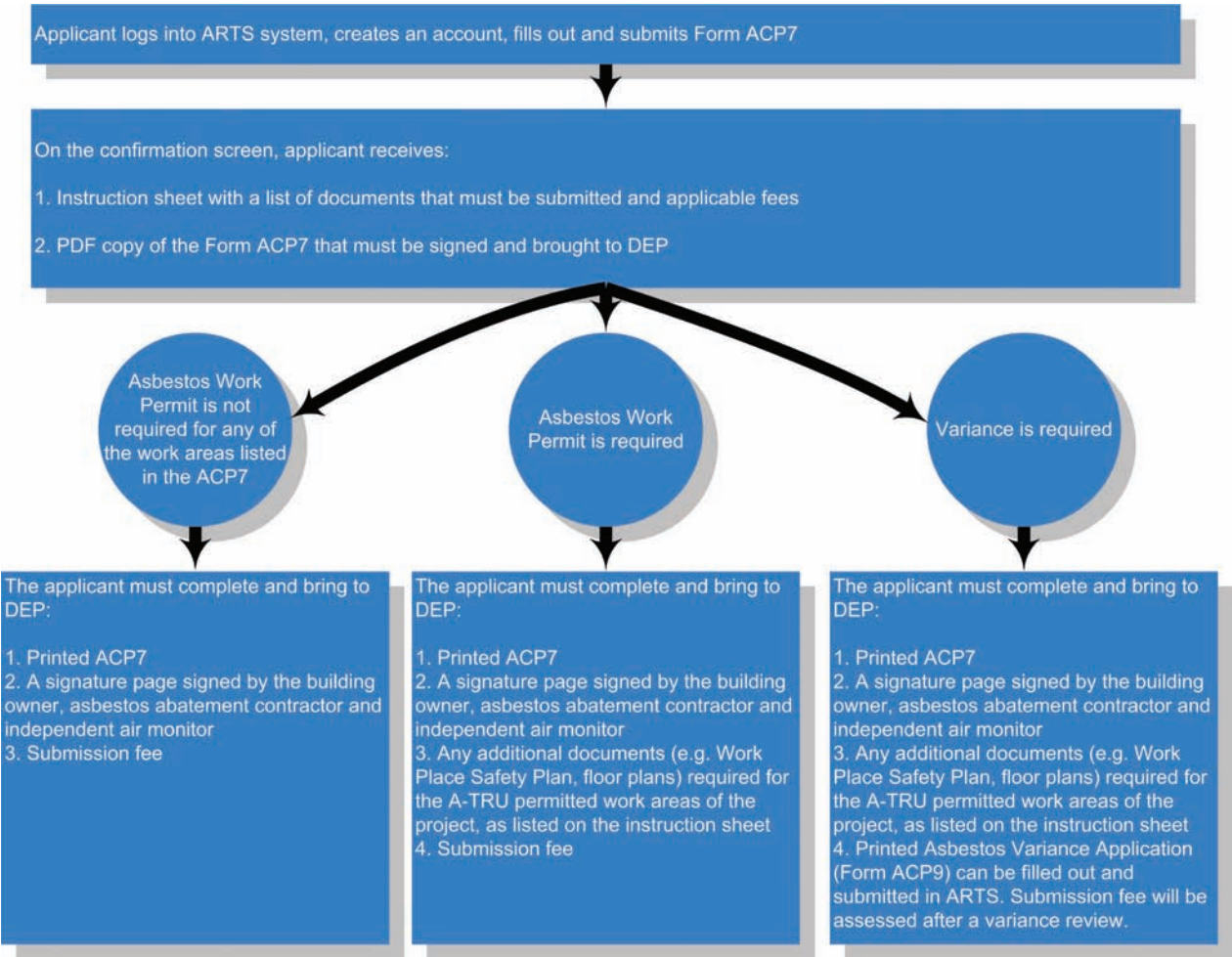
credit: Carl Ambrose

this document will be an instruction sheet. These detailed instructions will tell you, based on your answers on the application, if your project will require an Asbestos Work Permit and what documents you need to submit for your plan review. The instruction page will also show the notification and permit feesⁱⁱⁱ due at the time of submission, which are calculated based on the amount of ACM, if required.

registered architect or professional engineer to help prepare these documents. Then, when you have all the signatures on your signature page and all the accompanying documents you need to submit, you will be ready to bring them to the DEP office.

If the instruction sheet indicates that you must submit a Work Place Safety Plan, you must hire a

Fig. 2: Notifying DEP of an Asbestos Project



3. PROJECT REVIEW

The Project Review Section has two parts, 'In-person Submission' and 'Following Submission':

A. In-person Submission

The submissions counter for the DEP Asbestos Control Program is on the eighth floor of the DEP headquarters, located at 59-17 Junction Boulevard in LeFrak City, Queens.

When you present your signed Form ACP7 and filing fee to the DEP clerk, the signature page will be scanned to confirm that it corresponds to the Form ACP7 that was submitted online.

At this point, if you have the need to make any changes to the start date, end date or abatement method for this abatement project, the clerk will print a Correction Form that can be signed by any of the signatories to the ACP7. The authorized clerk can then make those changes in the ACP7.

Note: An expeditor or courier will be considered an agent of a signatory and allowed to sign a Correction Form only if they have a letter signed by an ACP7 signatory authorizing them to sign the Correction Form.

Once the signature sheet has been confirmed, one of four things may occur:

I. *If the application doesn't require an Asbestos Work Permit or a variance*, the DEP clerk will provide you with a stamped copy of the Form ACP7, which includes the TRU tracking number (this number is used by DEP to identify the ACP7 and all accompanying documentation with the particular job) and a copy of the Asbestos Abatement Notice. The Asbestos Abatement Notice must be posted centrally in the entranceway or lobby of the building where abatement is taking place and you must begin abating asbestos by the start



date on the Notice.

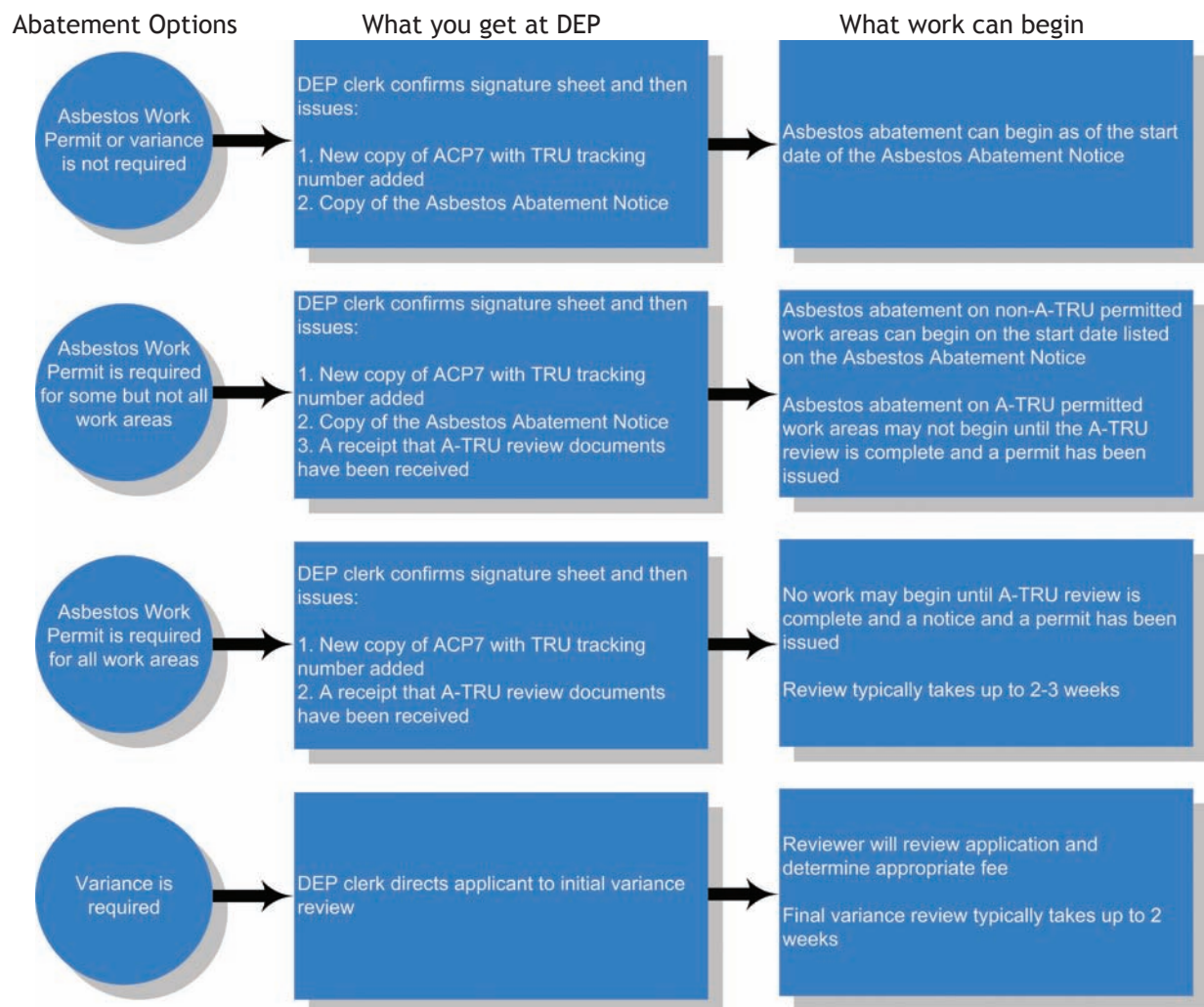
II. *If the abatement job requires an Asbestos Work Permit for some (but not all) of the asbestos work areas listed in the ACP7*, you must provide the DEP clerk with the documentation required for the A-TRU review. The clerk will then provide you with a stamped copy of the Form ACP7, printed with a TRU tracking number, a receipt confirming DEP's receipt of the supporting documents for A-TRU review and a copy of the Asbestos Abatement Notice. The Asbestos Abatement Notice must be posted at the workplace. You must begin abating asbestos in the work areas where A-TRU review is not required by the start date on the Notice. Once the A-TRU review is finished and you have an Asbestos Work Permit, you may begin work in the areas where the permit is required. (If you did not bring the correct documentation for A-TRU review, the receipt will note that A-TRU review remains pending until you provide the documents.)

- III. *If the abatement job requires an Asbestos Work Permit for all the asbestos work areas listed in the ACP7*, the DEP clerk will collect the documentation required for the A-TRU review. The clerk will then provide you with a receipt confirming DEP's receipt of the documentation for A-TRU review and a stamped copy of the Form ACP7 with a TRU tracking number added. DEP will not provide you with a copy of the Asbestos Abatement Notice until the Asbestos Work Permit is granted, since there is no work that may commence until after the A-TRU review takes place. (If you did not bring the correct documentation for A-TRU review, DEP will not accept the ACP7.)
- IV. *If the abatement job requires a variance*, the clerk will direct you to a DEP reviewer for initial variance review. Unlike the fee for the ACP7 and the A-TRU review, the variance fee cannot be determined until the variance application has been reviewed.^{iv} Therefore, you must meet with a DEP reviewer, who will perform a cursory review of the variance application to determine if the submission is complete for all technical aspects. Once the DEP reviewer is satisfied that the variance submission is completed, he or she will advise the clerk to enter the appropriate fee into the ARTS system and direct you back to the clerk to pay the fee for the variance.

B. Following Submission

- I. *If you leave DEP with an Asbestos Abatement Notice*, you must post the Asbestos Abatement Notice and work must commence on the start date in any work areas that do not require a variance or A-TRU review.
- II. *If all the required documents have been properly submitted*, the review period for a variance or Asbestos Work Permit will take approximately two to three weeks. You will receive the results of your Request for
- Variance and/or Asbestos Work Permit via a message sent to your email account advising you to log on to your online ARTS account (or by mail if you have requested it):
- If the Request for Variance and/or Asbestos Work Permit has been approved, a copy of your permit will be sent electronically to your ARTS account. You will enter the start date (which must be at least three days after the date of receipt) and you will be able to print the variance, which must be posted at the workplace, or the Asbestos Work Permit, which must be posted in the entrance of the building where abatement is taking place with additional copies hanging directly outside each permitted asbestos containment area.
 - If the Asbestos Technical Review Unit has any objections or questions concerning your variance and/or Asbestos Work Permit, you will be notified via your email (or by mail if you have requested it). You can respond to objections via fax or email, or you can schedule an appointment to speak with the A-TRU reviewers if you want detailed clarification about how to resolve the objections.
- III. *If you did not submit all the materials for your Request for Variance or Asbestos Work Permit*, it will be noted on your receipt, as well as in an email to you, that review is delayed pending the complete submission of all supporting material. Asbestos Work Permit and/or Variance approval can take up to two or three weeks, but these reviews will not begin until you have submitted all the necessary documentation (even if you have already received your Asbestos Abatement Notice and have already started work on non-variance, non-A-TRU jobs).

Fig. 3: Project Review



4. CONDUCTING ABATEMENT

A. Inspections

Once abatement has begun, your abatement project may be inspected by DEP. Inspectors ensure that the asbestos abatement and all related work is being conducted safely and according to law.

DEP inspectors will verify that abatement work taking place matches the work described in your submitted drawings and paperwork (including your Form ACP7, Variance Approval and Asbestos

Work Permit), and that it conforms to the City rules governing abatement. Therefore, a copy of your Asbestos Abatement Notice must be posted at the workplace, your Asbestos Work Permit must be posted at the building entrance and outside every workplace and Variance Approval must be posted outside every workplace.

If permits, drawings and/or paperwork are missing from the work site, or the DEP inspector finds that your project should have received an Asbestos Work Permit or Variance Approval but didn't, the inspector can order the abatement contractor to cease all abatement work. The

contractors and building owners may face penalties or even criminal prosecution for falsifying the Form ACP7.

Furthermore, DEP Inspectors trained in the fundamentals of Building and Fire Code safety inspections will be checking that abatement sites comply with fire- and life-safety requirements like maintaining egress and fire-protection systems.

B. Amendments

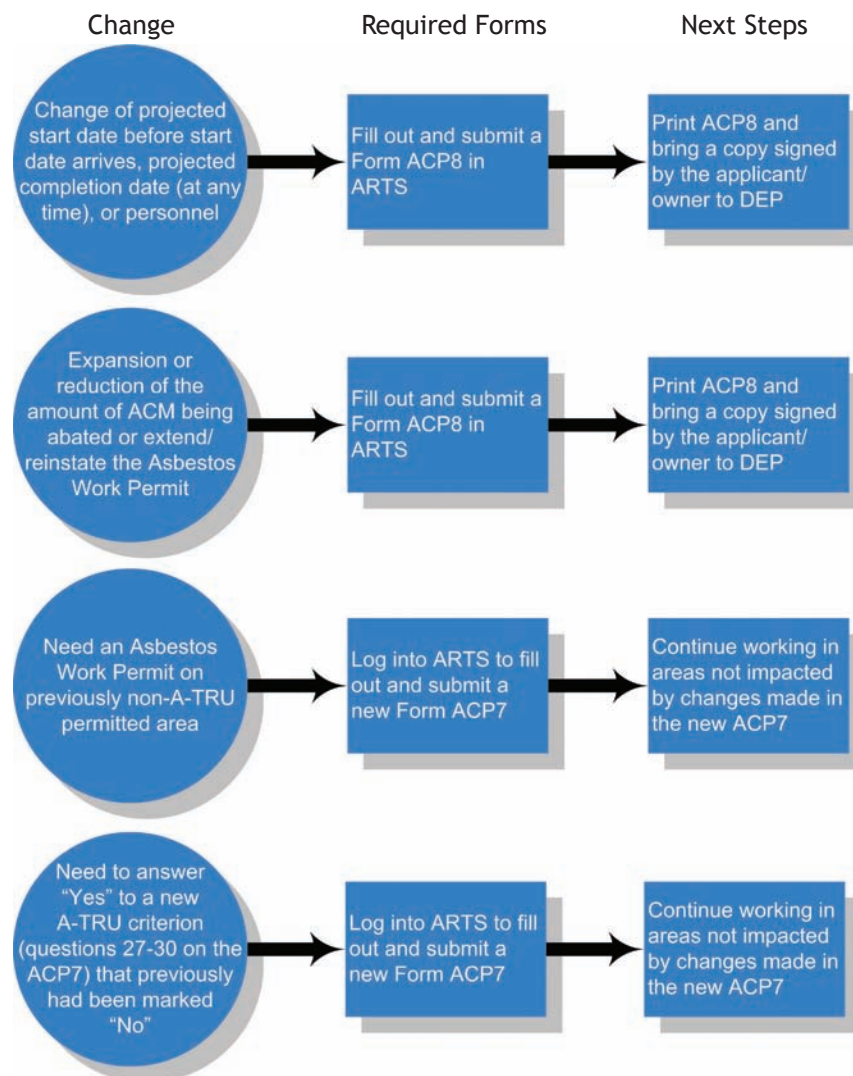
Modification or deviation from the information

provided on any notification submitted to DEP shall immediately be reported to DEP via your ARTS account using a Form ACP8.

If any of the following items change after the ACP7 has been submitted, you must submit a signed ACP8 to DEP:

1. Asbestos contractor
2. Third party air monitor
3. Project start/completion date
4. Additional amount of ACM
5. Any reduction in amount of ACM
6. Extend or reinstate the Asbestos Work Permit

Fig. 4: Amendment





If any of the following items change after the ACP7 has been submitted, you must submit the changes via your ARTS account only:

7. Project cancelled or postponed
8. Asbestos work schedule
9. Abatement procedures
10. Type of abatement
11. Asbestos Hauler

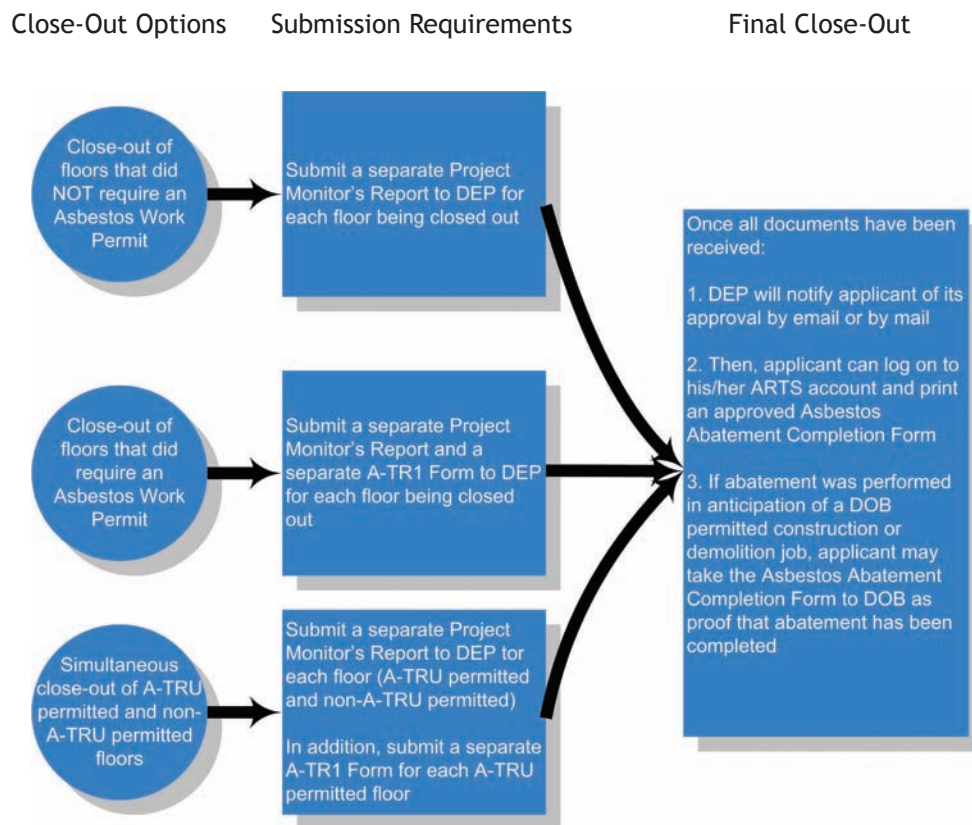
To register changes, enter your ARTS account and find the TRU number for the relevant project in the 'Processed' section on the homepage, and then click 'Make Changes.' You will be guided to a list of the details of your abatement project as they appear on your Form ACP7. Make whatever changes you need and then click 'Submit.' If you are making changes to items 1-6, ARTS will generate an Amendment Form (Form ACP8), which must be printed, signed and submitted to DEP with applicable fees, either by mail or in-person. Once DEP has received and approved the Form ACP8, it will advise you via your email that an approved version is in your ARTS account (or by mail, if requested) and the Form ACP8

should be posted at the work place next to the Asbestos Abatement Notice. If you are making changes to items 7-11, which do not necessitate the submission of a signed ACP8 to DEP, ARTS will immediately register the changes that you have entered and you may proceed with the abatement project.

However, you will have to file a new Form ACP7 if the changes that you are making will include any of the following:

- A change to the project details that will require an Asbestos Work Permit in a work area not previously covered; or
- A change to the project details that will require answering "Yes" about a new A-TRU criterion (questions 27-30 on the Form ACP7) that had previously been marked "No" (even in an area that is already permitted).

Fig. 5: Close-Out



5. CLOSE-OUT

In the past, the DOB issued permits for jobs as soon as it had received a copy of the ACP5, the ASB4, or an ACP7 indicating that the applicant was making plans to abate the asbestos. Under the new policy, the Form ACP7 is no longer a prerequisite for the issuance of a DOB permit. All abatement projects must be completed before a DOB permit will be issued. Once abatement has been successfully completed, DEP will issue an Asbestos Project Completion Form or an Asbestos Project Conditional Close-Out Form, either of which can be presented to DOB in order to obtain a DOB permit.

DEP issues an Asbestos Project Completion Form once all components of the asbestos abatement project have been completed. If the abatement project did not require an Asbestos Work Permit

and only received an Asbestos Abatement Notice, then the Abatement Project Close-Out will be issued once DEP receives a Project Monitor's Report. The Project Monitor is a certified professional who will monitor the abatement and review the results of the air monitoring. When abatement has been completed, the Project Monitor will file a Project Monitor's Report with DEP.

If the asbestos abatement project has received an Asbestos Work Permit from the Asbestos Technical Review Unit, then DEP will not issue the Asbestos Project Completion Form until it receives confirmation that all of the building work that was authorized by the Asbestos Work Permit has been carried out properly. This confirmation must be provided by a registered

architect or professional engineer, or another licensed professional qualified to grant that particular sign-off (e.g., a master plumber in a case where plumbing has been affected by the abatement) who will file an A-TR1 Form.

The A-TR1 Form may be used to report a number of things. If the abatement involved the removal of elements of the fire safety system like sprinkler systems, standpipes or exit doors, the appropriate inspector (e.g., architects, engineers, licensed plumbers, fire suppression contractors) will conduct a Special Inspection at the time that the building element is replaced to inspect and certify that the necessary work was completed as per all Building Code requirements. This Special Inspection will be noted on the A-TR1 Form that is submitted at the completion of the project.

In situations where no Special Inspection is required, an A-TR1 Form is still required to close out an Asbestos Work Permitted job. The registered architect or professional engineer will conduct a Final Inspection to confirm that the building has been returned to its original state. The registered architect or professional engineer will submit the A-TR1 Form and any relevant construction documents detailing the restoration of the building elements that were removed during the abatement.

Once DEP receives and reviews the appropriate documents, you will be notified of its approval via email (or by mail if you requested it). You will be able to log into the ARTS system and print your approved Asbestos Project Completion Form. You may then submit this form to DOB as proof that you have finished abatement, allowing the issuance of DOB construction permits.

If the work area is being left in a non-compliant state because a DOB-approved alteration or

demolition job will occur following abatement, the registered architect or professional engineer must certify that you have not exceeded your scope of work and begun your construction or demolition and that the approved alteration scope encompasses the asbestos project work area. In this case, once DEP reviews and accepts the A-TR1 Form, it will issue an Asbestos Project Conditional Close-Out Form that will authorize DOB to issue building permits but will not close out the Asbestos Work Permit. You will have to keep the Asbestos Work Permit posted until the DOB permits have been pulled. Once the permits

have been pulled, DEP will receive notice from DOB and the Asbestos Work Permit will be automatically closed out. If the Asbestos Work Permit, which is valid for one year, expires before the necessary DOB permits have been issued and the Asbestos Work Permit has not been renewed, DEP will issue violations for not properly closing out the abatement project. You will have to apply to have the Asbestos Work Permit reinstated in order to complete the close-out process.

A-TR1: Technical Report
Statement of Responsibility
This form must be typewritten

1. Location Information Required for all applications.

House no. _____ Street Name _____ TRU No. _____
 Close-out Type Check one: Full ☐ Partial ☐

2. Applicant Information Required for all applications.

Last Name _____ First Name _____ Middle Initial _____
 Business Name _____ Business Telephone _____
 Business Address _____ Business Fax _____
 City _____ State _____ Zip _____ Mobile Telephone _____
 License Type choose one: ☐ P.E. ☐ R.A. ☐ Other _____ License Number _____

3. Special Inspection and Progress Inspection Items

3A. ID	3B. Identification of Requirement	3C. ACP-7 question	3D. Code Section
Special Inspection Items			
1	Photoluminescent Exit Path Marking (report required)	28F	BC 1028.11
2	Sprinkler Systems	28G	BC 1704.21
3	Standpipe Systems	28H	BC 1704.22
4	Sprayed Fire-Resistant Materials	28A	BC 1704.11
5	Smoke Control Systems	28B	BC 1704.14
6	Mechanical Systems	28B	BC 1704.15
7	Preston, Draftstop, and Fireblock Systems	28B	BC 1704.25
Progress Inspection Items			
8	Fire-Resistance Rated Construction	28A	BC 109.3.4
9	Public Assembly Emergency Lighting	28F	28-116.2.2
Final Inspection			
10	Final (Required for all A-TRU Jobs)		28-116.2.4.2

4. Locations of Abatement Required for all applications.

Floor	Entire Floor	Section of Floor	Inspection ID (See section 3A above)	DOB date of filing conditional close-out form	Certificate of Complete Inspection/Tests
	<input type="checkbox"/>				Initial & Date
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				

DRAFT

Fig. 6: Items 1-9 in Section 3 of the A-TR1 relate to Special Inspections. Item 10 is the Final Inspection required to close out all permitted jobs.

2 The New Asbestos Project Notification Form

A detailed explanation of the new Asbestos Project Notification Form available on ARTS:

1. Asbestos Job Status
2. Form ACP7 Explained

1. ASBESTOS JOB STATUS

Once you log on to the ARTS system, you can see a list featuring the status of all your asbestos jobs. The status might be:

Work In Progress - These are applications that you are in the process of filling out.

Pending - These applications have been submitted to DEP's database and are pending until you come in with your signature sheet and any supporting documents. Opening these documents for editing will cause them to be automatically moved back into the "Work In Progress" folder.

Submitted - These applications have been submitted to DEP along with all necessary signatures and supporting documents. This category includes abatement jobs that are approved and may already be in progress. Once at this stage, your submitted paperwork can no longer be edited.

2. FORM ACP7 EXPLAINED

Online, the Form ACP7 has been divided into nine sections:

Section 1: Facility - Requires the location of the property where asbestos abatement will take place and some very basic characteristics about the property.

Sections 2 - 6: Contact Information - Requires contact information for all parties involved with the abatement project, including the applicant information (Section 2), the building owner (Section 3), the asbestos abatement contractor (Section 4), the third-party air monitor (Section 5) and the asbestos hauler (Section 6). In the section requesting information about the asbestos hauler (Section 6), you must list the disposal sites where the asbestos will be discarded.

Section 7: Project Information - This section asks basic questions about the asbestos abatement operation, including the abatement work schedule, the size of the abatement area and the type of abatement to be used. This section also asks if the building is government-owned.

Section 8: Abatement Locations - In this section, you must list each location within the building where you will be conducting abatement. You must provide the location of the abatement area and the amount (e.g., square feet or linear feet) of ACM to be abated. In this section you must note if any

Form ACP7 Outline

Section 1
Facility

Section 2
Contact Information:
Applicant

Section 3
Contact Information:
Building Owner

Section 4
Contact Information:
Asbestos Abatement Contractor

Section 5
Contact Information:
Third Party Air Monitor

Section 6
Contact Information:
Asbestos Hauler

Section 7
Project Information

Section 8
Abatement Locations

Section 9
Project Details

of the locations will require a variance.

Section 9: Project Details - While all the other sections in the online ACP7 can be filled out in any order, this section cannot be filled out until Section 8 has been completed and all the asbestos locations have been entered.

This section consists of three groups of very detailed questions. They are presented here with some guidance to help you answer them accurately:



credit: Andreanna Seymour

The first group of questions in this section asks whether any of the building's fire protection systems (e.g., fire alarm or sprinkler system) will be turned off as a result of the abatement work.

NYC Asbestos Control Program

http://nyc.gov/html/dep/html/arts

Office of the Mayor Department of Environmental Protection Department of Buildings Fire Department

Residents Business Visitors Government Office of the Mayor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NYC ASBESTOS CONTROL PROGRAM

To update your profile, click on aroller@cityhall.nyc.gov | [Return to Main Menu](#) | [Log Out](#)

☒ All sections of the ACP7 form are complete. To start the submission process, [click here](#).

Project Details

Please make sure all Abatement Locations are documented before completing the Project Details section.

Checking "Yes" to any of the following subsections will require notice to FDNY as per Section 901.7 NYC Fire Code, Local Law 26 of 2008.

Does the project involve?

☐ A. Disengagement or obstruction of any component of exit signage or exit lighting system

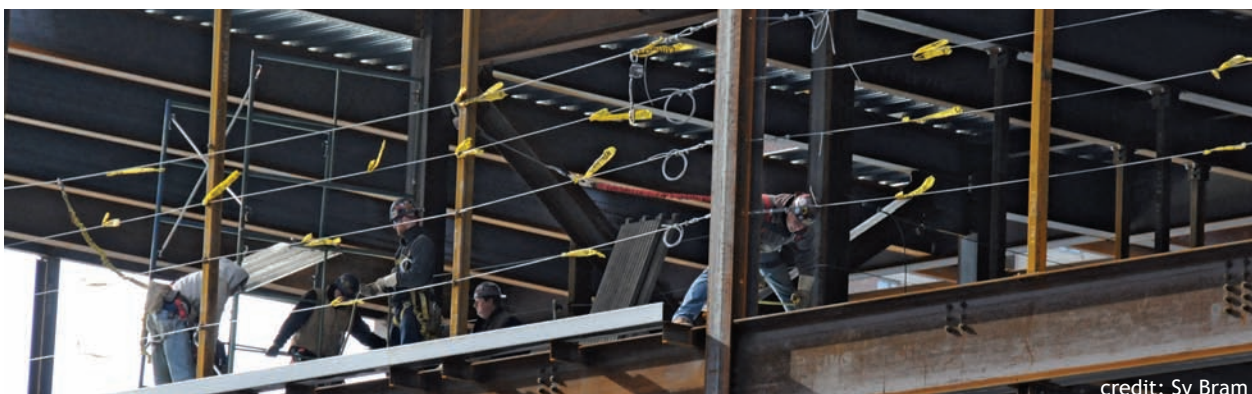
☐ B. Disengagement of any fire alarm system component including any fire alarm-initiating device

☐ C. Shut-off of the sprinkler system water supply

☐ D. Shut-off of any part of a standpipe system or standpipe system components, including valves or fire pumps

Checking "Yes" to any of the following will require you to submit a complete Work Place Safety Plan and obtain an Asbestos Abatement permit from DEP before commencing abatement activities. Please see section 1-26 of the DEP Asbestos Rules and the instructions for this form

If you indicate that any of these conditions will occur you must notify the FDNY Borough Communications Office, informing them of the date and time those conditions will be created and follow any instructions you receive from FDNY (this may include the posting of a fire guard).



credit: Sy Bram

The second group of questions determines whether the abatement work will result in blocked or compromised egress or whether any components of the fire protection system are going to be removed as part of the abatement.

If you indicate that any of these conditions will occur, the project will need a permit issued by A-TRU, which will require a Work Place Safety Plan in order to conduct its technical review. A Work Place

Safety Plan consists of work plans drawn up by a registered architect or professional engineer. It must include a floor plan indicating the location of the asbestos abatement containment area(s) - including personnel and waste decontamination enclosure system(s) - signed by a licensed project designer and any narratives that explain the means, methods, and sequencing of any additional safety measures to be in place for the duration of the permit.

The screenshot shows a web browser window titled "NYC Asbestos Control Program". The address bar shows "http:// nyc.gov/html/dep/html/arts". Below the address bar are links for "Office of the Mayor", "Department of Environmental Protection", "Department of Buildings", and "Fire Department". The main content area is titled "Does the project involve?" and contains a list of eight questions (A-H) with checkboxes. Question H, "Removal or dismantling of any part of a standpipe system, including valves or fire pumps", is highlighted in yellow. Below the list, a note states: "If your answer 'Yes' to any of the following, you must submit a completed A-TR1 Form and obtain an Asbestos Abatement Permit from DEP before commencing abatement activities. Please see section 1-26 of the DEP Asbestos Rules and the instructions for this form."

Question	Answer
A. Obstruction of an exit door leading to an exit stair or the exterior of the building	<input type="checkbox"/>
B. Obstruction of an exterior fire escape or access to that fire escape	<input type="checkbox"/>
C. Obstruction of a fire-rated corridor leading to an exit door	<input type="checkbox"/>
D. Removal of handrails in an exit stair or ramp	<input type="checkbox"/>
E. Removal or dismantling of any fire alarm system component including any fire alarm-initiating device (e.g. smoke detectors and manual pull stations)	<input type="checkbox"/>
F. Removal or dismantling of any exit sign, including directional signs, or any component of the exit lighting system, including photoluminescent exit path marking	<input type="checkbox"/>
G. Removal or dismantling of any part of a sprinkler system including piping or sprinkler head	<input type="checkbox"/>
H. Removal or dismantling of any part of a standpipe system, including valves or fire pumps	<input type="checkbox"/>

The third group of questions determines whether or not the abatement work entails removal of passive fire protection (e.g., fire-resistance rated walls, sprayed on fireproofing, or smoke dampers).

If you indicate that any of these conditions will occur, the project will require a permit from A-TRU. However, instead

of a full Work Place Safety Plan, you will only need to submit floor plans of all abatement containment areas in the building, all applicable construction documents, and all documents detailing how the work area is to be returned to its original condition. During the close-out, these projects are like any other Asbestos Work Permitted jobs and a Statement of Responsibility (Form A-TR1) from a registered architect or professional engineer must be submitted after the work has been finished in order to ensure the correct restoration of the work area after the abatement has been completed.

The screenshot shows a web browser window titled "NYC Asbestos Control Program". The address bar shows "http:// nyc.gov/html/dep/html/arts". Below the address bar are links for "Office of the Mayor", "Department of Environmental Protection", "Department of Buildings", and "Fire Department". The main content area is titled "Does the project involve?" and contains a list of four questions (A-D) with checkboxes. Question A, "Removal of any fire-resistance rated portions of a wall, ceiling, floor, door, corridor, partition, or structural element enclosure including spray on fire-resistance rated materials", is highlighted in yellow. Below the list, a note states: "Does this work (i.e., not specifically related to abatement activity) otherwise require a permit from DEPARTMENT OF BUILDINGS?".

Question	Answer
A. Removal of any fire-resistance rated portions of a wall, ceiling, floor, door, corridor, partition, or structural element enclosure including spray on fire-resistance rated materials	<input type="checkbox"/>
B. Removal of any fire dampers, smoke dampers, fire stopping materials, fireblocking or draft stopping within fire-resistance rated assemblies or within concealed spaces	<input type="checkbox"/>
C. Removal of any non-load bearing / non-fire-resistance rated wall (greater than 45 sq.ft or 50% of a given wall)	<input type="checkbox"/>
D. Any plumbing work other than the repair or replacement of plumbing fixtures	<input type="checkbox"/>



3 Maintaining Proper Egress

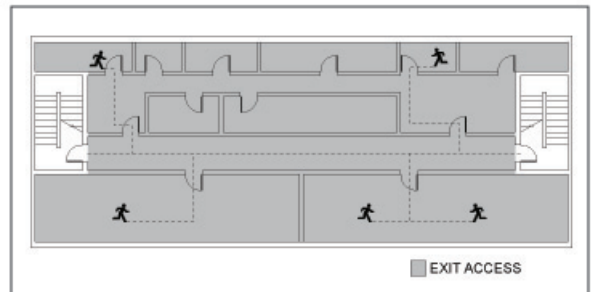
An introduction to principles of egress and egress during abatement:

1. What is Egress?
2. Egress During Abatement
3. Mitigation Steps
4. A-TRU Review and Permit
5. Inspections

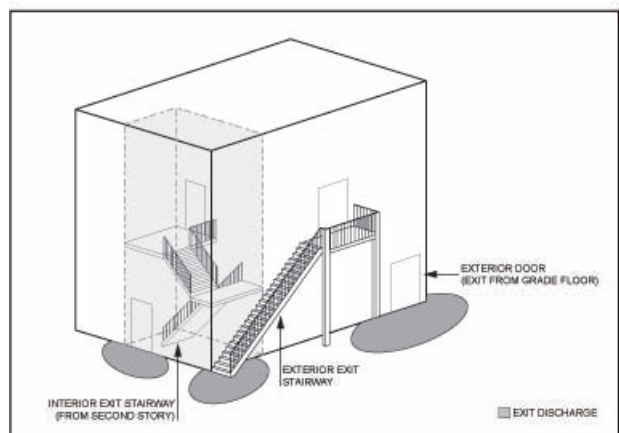
1. WHAT IS EGRESS?

A means of egress, as defined in DEP rules, is “a continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building, structure or premises to a public way.”

Under the ACP Rules, required means of egress, including emergency and fire exits, shall be maintained at all times during abatement activities, except as otherwise provided under Section 3303 of the New York City Building Code.



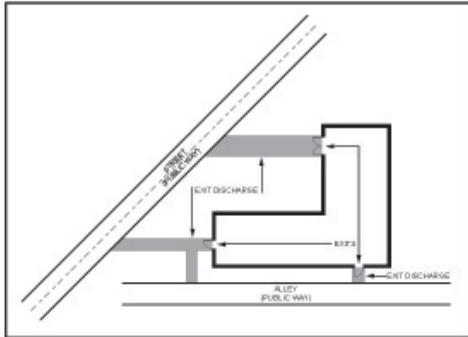
The requirements for egress in the DEP rules, as well as in the Building Code and Fire Code, are intended to ensure that safe passage is always maintained within buildings undergoing abatements so that, in the case of an emergency, building occupants and asbestos handlers can evacuate and first responders can safely conduct rescue operations.



There are many components to maintaining proper egress. In preparing an abatement work-site, revised § 1-81 of the rules stipulates several

new requirements relating to the maintenance of exit ways and exit lighting, including:

- Posting a floor plan in the building's lobby showing the location of all fire exits [§ 1-81(b)].



- Maintaining exit signs in the work area [§ 1-81(t)].
- Replacing any emergency lighting blocked by abatement-related materials with battery-operated exit signs, exit lights and/or photoluminescent path markings [§ 1-81(l)].
- Exits shall not be obstructed; however, the exit shall not be considered obstructed if the barrier is limited to two layers of fire retardant 6-mil plastic and marked as an exit by photoluminescent paint or signage. Additionally, cutting tools must be attached to the work area side of the plastic to enable workers to escape in the event of an emergency [§ 1-81(o)(4)].
- Means of egress are not allowed to be obstructed by hardwall barriers unless an alternative means of egress is provided to the satisfaction of the A-TRU plan examiners [§ 1-81(o)(5)].

Along with maintaining egress in the work area generally, the DEP rules require maintenance of all exits from work areas in accordance with Section 1027 of the New York City Fire Code. Among those requirements:

- All doors and other devices must be maintained in good working order [FC 1027.3.1].
- All passageways that are part of the egress must be kept free from furniture or storage that would create an obstruction [FC 1027.4 and 1027.4.1].
- In the winter, maintaining egress includes preventing snow and ice from accumulating in front of exits [FC 1027.3.3].

Additionally, § 1-94(f) of the DEP rules requires abatement contractors to document daily inspections of emergency exits in their log book. Section 1-94(g) of the rules requires abatement work to cease if blocked exits are discovered during inspection.

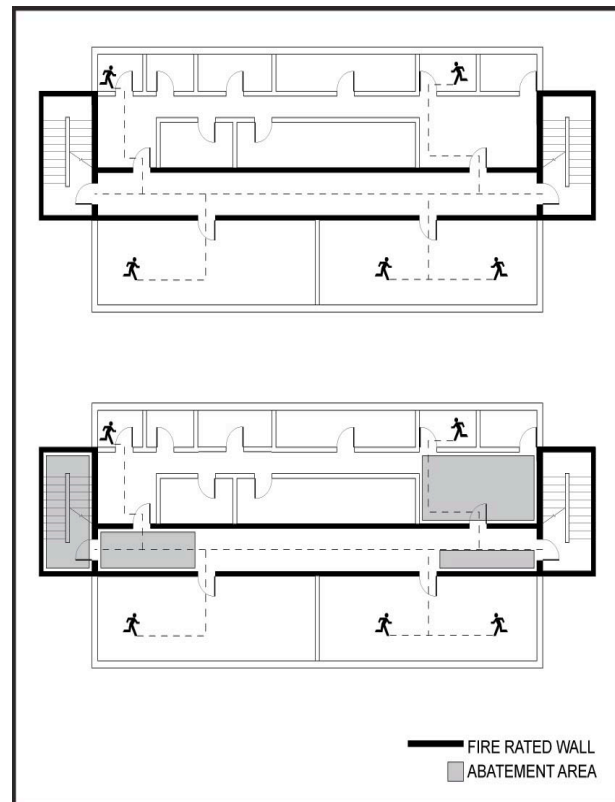


Diagram indicating abatement areas that obstruct egress.

2. EGRESS DURING ABATEMENT

In the course of an abatement job, a number of legitimate reasons to obstruct egress may arise. Many of these are referred to in the 'Project Details' section of the new Form ACP7, where they appear in the form of questions. An asbestos abatement project may involve any of the following:

1. Obstruction of an exit door leading to an exit stair or to the exterior of the building.
2. Obstruction of an exterior fire escape or access to that fire escape.
3. Obstruction of a fire-rated corridor leading to an exit door.
4. Removal of handrails in an exit stair or ramp.

Each of these represents a scenario where the abatement containment unit is situated in a place that will prevent asbestos abatement workers and/or building occupants from safely exiting the premises or first responders from entering the premises in the case of an emergency. The ACP7 refers to other situations where egress is impacted by the impairment of systems that help guide building inhabitants out of the building. These include:

5. Removal or dismantling of any exit sign or any component of the exit lighting, including photoluminescent exit path markings.
6. Disengagement or obstruction of any component of exit signage or exit lighting system, including photoluminescent exit path markings.

3. MITIGATION STEPS

You can take several mitigating measures to help prevent the obstruction of egress during abatement:

1. In a hallway or corridor (i.e., an exit access), egress is not considered to be blocked as long as a 36" wide path is maintained for the entire length of that hallway or corridor.
2. A doorway leading to an exit or a window leading to a fire escape (i.e., an exit) is not considered to be obstructed if the exit is only sealed with two layers of 6 mil fire retardant polyurethane sheeting in front of the doorway or window. However, the doorway or window should be clearly marked as an exit and a clearly visible knife or blade that can be used to cut through the polyurethane in case of an emergency needs to be attached next to the sheeting.
3. If exit signs, exit lighting or photoluminescent exit-path markings will be turned off, dismantled or obstructed



credit: Carl Ambrose



credit: Carl Ambrose

during the abatement, egress will not be considered to be impacted as long as they are replaced with battery-equipped temporary substitutes.

4. A-TRU REVIEW AND PERMIT

If egress must be obstructed or impacted during the course of your asbestos abatement project and the aforementioned mitigation steps are not an option, you must record this on your Asbestos Project Notification (Form ACP7). Then, you will need an A-TRU review and an Asbestos Work Permit before abatement may begin in the location where means of egress will be obstructed (abatement may begin in other work areas where egress is not affected once the Abatement Project Notification (ACP7) has been submitted and the Asbestos Abatement Notice has been issued).

For the purpose of the A-TRU review, you will need to provide the Asbestos Technical Review Unit with a Work Place Safety Plan consisting of:



1. Floor plan(s), signed by a licensed project designer, indicating the locations of all abatement containment areas in the building, including personnel and waste decontamination enclosure system(s);
2. Floor plan(s) produced by a registered architect or professional engineer indicating the locations of any obstructed required exits and all temporary mitigating measures to be undertaken for the duration of the Asbestos Work Permit. These plans may also include alternate egress path(s) that will satisfy the applicable code requirements for maximum travel distances, the minimum number of exits per floor, exit widths and required signage and lighting. This is in keeping with 2008 Building Code Section BC 3303.11, which provides an exception for the maintenance of regular means of egress where there are approved temporary means of egress systems and facilities;
3. A Tenant Protection Plan as required by Chapter 1 of Title 28 of the Administrative Code where the abatement work is in a building where any dwelling unit is occupied for the duration of the Asbestos Work Permit;
4. Description in narrative form of any measures to be taken to mitigate compromised fire protection systems or means of egress. Such descriptions may include surveillance by a fire watch and an emergency action plan which sets forth the circumstances and procedures for the sheltering in place, in-building relocation, partial evacuation or evacuation of building occupants in response to an emergency.

5. INSPECTIONS

Once abatement operations begin, the asbestos handler supervisor must check exits daily to ensure that there are no exterior blockages or impediments to exiting. If any blockages or impediments are identified, work must stop until the blockage has been removed. The asbestos handler supervisor should maintain a record of these inspections in their logbook.



TIPS TO HELP PREPARE FOR A-TRU

- Be aware of which building materials are going to be used.
- Be aware of where the asbestos containment unit is going to be situated relative to fire safety devices.
- Be aware of how the building is going to be used during the course of the asbestos abatement.
- Develop plans for different configuration options for the abatement containment units.

ENDNOTES

ⁱ Under normal circumstances, the DOB will require that any asbestos in an area where construction or demolition is to occur must be completely abated before they will issue a DOB permit.

ⁱⁱ Fees for asbestos project notifications, which have not been changed, are calculated based on the amount of ACM being abated:

More than 25 but less than 100 linear feet or more than 10 but less than 50 square feet	\$200
More than 100 but less than 260 linear feet or more than 50 but less than 160 square feet	\$400
More than 260 but less than 1000 linear feet or more than 160 but less than 1000 square feet	\$800
1000 linear feet or more or 1000 square feet or more	\$1,200

ⁱⁱⁱ Additional fees for Asbestos Work Permits (A-TRU Review) are calculated based on the amount of ACM being abated:

25 to 99 linear feet or 10 to 49 square feet of ACM	\$100
100 to 259 linear feet or 50 to 159 square feet of ACM	\$300
Large projects up to 1000 linear/square feet of ACM	\$500
1,000 to 4,999 linear/square feet of ACM	\$700
5,000 to 9,999 linear/square feet of ACM	\$1,100
10,000 or more linear/square feet of ACM	\$1,300

^{iv} Fees for the Asbestos Variance Application are calculated based on the amount of ACM to be abated and the number of sub-sections for which the variance is requested:

	If total amount of ACM is less than 5,000 ft.	5,000 ft. or more
First sub-section (per category).....	\$400 \$600
Each additional sub-section.....	\$200 \$300
Maximum fee.....	\$1,200 \$1,800

^v The following are Fire Code requirements regarding maintenance of the means of egress, which have been incorporated into the DEP rules and apply to asbestos abatement sites.

SECTION FC 1027 - MAINTENANCE OF THE MEANS OF EGRESS

1027.1 General. The means of egress for buildings, structures or premises, or parts thereof, shall be maintained in accordance with the construction codes, including the Building Code and this section.

1027.2 Prohibition. It shall be unlawful to obstruct or impede access to any required means of egress, including any exit, exit access or exit discharge.

1027.3 Unobstructed and unimpeded egress required. All required means of egress, including each exit, exit access and exit discharge, shall be continuously maintained free from obstructions and impediments to immediate use in the event of fire or other emergency.

1027.3.1 Door hardware. Door hardware and other devices and physical components of the means of egress shall be maintained in good working order at all times.

1027.3.2 Security devices. It shall be unlawful for a security device to emit any substance that could obscure a means of egress in any building, structure or premises. Security devices affecting means of egress shall be subject to the approval of the Commissioner of Buildings in consultation with the commissioner.

1027.3.3 Snow and ice. All required means of egress shall be maintained free from the accumulation of snow and ice.

1027.3.4 Overcrowding. Premises shall not be caused, allowed or maintained in such a manner as to become overcrowded, such that the number of persons present on the premises and/or their location thereon obstructs or impedes access to any means of egress.

1027.4 Furnishings and decorations. Furnishings, decorations or other objects shall not be placed so as to obstruct exits, access thereto, egress therefrom, or visibility thereof. Hangings and draperies shall not be placed over exit doors or otherwise be located to conceal or obstruct an exit except as authorized by the commissioner. Mirrors shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner to confuse the direction of exit.

1027.4.1 Corridor storage. It shall be unlawful to store combustible materials or combustible waste in corridors except as authorized by this code or by the commissioner.

1027.5 Existing window gates and other restrictions. Bars, grilles, grates or similar devices installed on windows and other openings onto fire escapes prior to the effective date of this code shall be in accordance with the applicable laws, rules and regulations in effect at the time of installation, and Section 1025.4

1027.6 Maintenance of window gates and other restrictions. Bars, grilles, grates or similar devices placed over emergency escape and rescue openings, and windows or other openings onto fire escapes shall be maintained in good working order.

NYCDEP Water and Sewer

Application for Permit for
Tap, Plug, Wet Connection, Repair/Relay of Water Service Line
Please Print
Applicant must be a Licensed Plumber



Work Site Street Address: _____ Borough: _____ Block: _____ Lot(s): _____

City, State, Zip Code: _____ Tentative Lot(s): _____

Check One: _____ Tap _____ Wet Connection
 _____ Plug _____ Repair/Relay Service Line
 _____ Tap and Plug _____ Wet Connection and Plug

Name of Street on which Tap/Wet Connection is to be Installed _____
(Circle One) → (ST) (AVE) (RD) (DR) (OTHER)

Tap or Wet Connection to be Installed on North South East West side of the street.
(Circle One)

Size of City Water Main	_____	Detail Distribution Map No.	_____	Size of other City/ Private Water Main(s)	_____
Size of Private Water Main	_____	Type of Service	<u>Domestic</u> <u>Fire</u> <u>Sprinkler</u> <u>Standpipe</u> <u>Combined</u> (Circle One)		
Size of Internal Water Main	_____	Approx. Length of Service	_____		
Tap/Wet Connection Size	_____	Plug(s) (how many?)	_____		
Service Size	_____	How Many Sprinkler Heads?	_____		
Estimated Demand (gpm)	_____	DOT Highway Permit No.	_____		
Rated Capacity of Pumps (gpm):		Domestic	_____	Fire/Sprinkler:	_____
DOB New Building # or Alteration #	_____	Building Size:	_____		
Cross Connection Control Approval (yes or no)	_____	Schedule B attached (yes or no)	_____		
Cross Connection Control Exemption (yes or no)	_____	Is Plug in Same Excavation as existing tap/W.C.? (yes or no)	_____		
Describe Tap Work (Install? Plug? Relay? Repair? Locate?) /Nature of Repair/Other Comments _____ _____					

Other Existing Taps/Wet Connections, Service Lines and Meters for this Property:

Other Taps/Wet Connections		Size	Other Service Lines		Size	Other Meters		Account # or Meter #
(1)	_____		(1)	_____		(1)	_____	
(2)	_____		(2)	_____		(2)	_____	
(3)	_____		(3)	_____		(3)	_____	
(4)	_____		(4)	_____		(4)	_____	

Describe the property use. Check all that apply:
☐ Industrial ☐ Retail ☐ Residential ☐ Medical/Dental ☐ Warehouse ☐ Car Wash
☐ Hospital ☐ School ☐ Office ☐ Factory ☐ Restaurant ☐ Laundry
☐ Dry Cleaner ☐ Other (specify) _____

For Plugs:

Size of Tap/W.C. to be Destroyed	Location of Tap/W.C. to be Destroyed	Meter Number corresponding to Tap/W.C. to be Destroyed	Account Number Corresponding to Tap/W.C. to be Destroyed
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

The undersigned plumber being the duly authorized agent for the owner of the above property, hereby agrees to destroy all existing abandoned taps supplying this or the former building slip, and in case of this failure to do so, will be suspended immediately and further permits to him refused.

Plumber's Name (Print): _____	License Number: _____
Signature: _____	Plumber's CIS Account No.: _____
Business Address _____	Application Date: _____
City/State/Zip Code: _____	

BWSO

Approximate Date of Work: _____

Approved By: _____

Approval Date: _____

BCS

Premises Account #: _____

Permit Type: _____ Number: _____

Fee: _____ Date Issued: _____

Issued by: _____

HIGHWAY PERMIT NUMBER	BLOCK

Form No. WPC-11 Rev. E (02-04)
[WHITE]



THIS IS NOT AN APPLICATION TO OPEN STREET OR SIDEWALK

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER & SEWER OPERATIONS
DIVISION OF PERMITTING & CONNECTIONS

BOROUGH OF _____

APPLICATION FOR PERMIT
TO PLUG SINGLE/MULTIPLE PREMISE(S) SEWER HOUSE CONNECTION(S)

APPLICATION IS HEREBY MADE FOR PERMISSION TO PLUG THE FOLLOWING SEWER HOUSE CONNECTIONS

WHICH ARE CONNECTED TO THE ☐ SANITARY ☐ STORM ☐ COMBINED SEWER LOCATED IN
(Check one of the above)

(STREET NAME) _____

BETWEEN _____ AND _____

☐ CONSENT FROM OWNER(S) OF
THE BUILDING(S) FURNISHED _____
(STREET NAME)

BETWEEN _____ AND _____

THE OWNER OR BUILDER OF THE BUILDING(S) _____

THE ADDRESS OF THE OWNER IS _____

HOUSE No.	LOT No.	CONNECTION SIZE(S) & TYPES	LOCATION	PERMIT NUMBER

* Indicate side of street, [N, S, E, or W], and the distance from the building line on the corner of either
intersecting street to the location of the connection where work is to be done.

IT IS UNDERSTOOD AND AGREED THAT THE WORK PROPOSED SHALL BE EXECUTED IN A GOOD AND WORKMAN-LIKE
MANNER AND TO THE SATISFACTION OF THE COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN
ACCORDANCE WITH THE PROVISIONS OF THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK AND ANY AMENDMENTS
THERETO, AND ANY APPLICABLE RULES AND REGULATIONS.

NOTE: PLUMBER TO AFFIX SEAL.

NAME OF THE LICENSED PLUMBER [Print] _____

SIGNATURE OF LICENSED PLUMBER _____

ADDRESS OF LICENSED PLUMBER _____

PLUMBER'S LICENSE NUMBER

BUREAU Comments and Approval Stamp

PERMIT FEE \$ _____

DATE: ____/____/____

1. Number of premises indicated: _____

2. Total number of connection indicated: _____

TO THE PLUMBER: **PLUG TO BE MADE AT CURB-SIDEWALK SIDE UNLESS OTHERWISE NOTED.**

NOTE: APPROVAL VALID FOR THIRTY (30) DAYS.

FILL IN PERMIT NUMBERS ABOVE.

TOTAL FEE PAID \$ _____

DATE: _____

CLERK _____

BUREAU OF CUSTOMER SERVICE

NO PERMIT(S) OF ANY TYPE WILL BE ISSUED FROM THE BUREAU OF CUSTOMER SERVICE UNTIL ALL OPEN CHARGES
HAVE BEEN PAID AND ALL KNOWN VIOLATIONS AGAINST THE PREMISES HAVE BEEN REMOVED TO THE SATISFACTION OF
THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

NYCDOB-Forms



Buildings

APPLICATION FOR INSPECTION PRIOR TO DEMOLITION
(AND PRE-DEMOLITION REPORT)

Application must be typewritten.

BEST USE ONLY
DEMOLITION #

Applicant, please complete all information requested below: (For mechanical demolition requests complete form BEST-4 as well.)

Number of structures at this address you intend to demolish (a separate application is required for each):

Name:

Company:

E-mail:

Phone:

Fax:

Application date:

☐ Bronx

☐ Brooklyn

☐ Manhattan

☐ Queens

☐ Staten Island

Structure type (check only one):

☐ House

☐ Garage

☐ Shed

☐ Commercial Building

☐ Other:

Building address:

Legalizing a completed demolition? ☐ Yes ☐ No

Cross streets:

BIN:

Block:

Lot:

All AKA's ("Also-Known-As", if applicable):

BIS job # for demolition (DM) filing:

Other related BIS job #s (if applicable):

Distance from nearest street corner (in feet):

Mechanical demolition requested?

☐ No

☐ Full

☐ Partial

BEST must be notified in writing 24 hours prior to the commencement of any full demolition (see BC 105.6.1).

PLOT DIAGRAM (MUST INDICATE ZONE OF SAFETY ON DIAGRAM)

N



The north point of the diagram
must agree with the arrow

A survey may be submitted in addition to or in lieu of a plot diagram as long as the zone of safety is indicated.

DO NOT WRITE BELOW THIS LINE: OFFICIAL USE ONLY

Date of report:

Number of stories:

Height of building:

Occupancy: Is building vacant? ☐ Yes ☐ No

Sidewalk shed required? ☐ Yes ☐ No

If yes, has a sidewalk shed been erected? ☐ Yes ☐ No If yes, provide permit number:

Does the building have fire escapes or other exits used jointly with an adjoining or abutting building? ☐ Yes ☐ No

Will the removal of the fire escape or other exit affect the adjoining building? ☐ Yes ☐ No

Does the building have party walls or walls enclosing an adjoining building? ☐ Yes ☐ No

If yes, please describe:

Has the demolition of the building commenced? ☐ Yes ☐ No

If yes, answer the following questions:

Has work been stopped? ☐ Yes ☐ No

Have the police been notified? ☐ Yes ☐ No

Has an ECB violation been issued? ☐ Yes ☐ No

If yes, provide ECB violation number:

Comments:

Inspection Result:

☐ Pass

☐ Fail

Inspected by:

Signature:

Badge #

Date:

Supervisor:

Signature:

Badge #

Date:

Administrative Comments:



BEST Appointment Request Form

(A SEPARATE FORM MUST BE SUBMITTED FOR EACH JOB)
Submit typewritten form to BESTappt@buildings.nyc.gov

1	REQUESTOR (Required)
---	-----------------------------

Name _____

Business Phone _____

Cell Phone _____

Email _____

2	LOCATION INFORMATION (Required)
---	--

Address _____

Job # _____

BIN # _____

Community Board # _____

Block # _____

LOT # _____

3	APPOINTMENT REQUEST (Required)
---	---------------------------------------

☐ **Pre-Demolition Inspection**

Onsite Plans ☐ YES ☐ NO

TR1 Statement of Responsibility ☐ YES ☐ NO

Is the requested appointment a follow-up to previous objections issued? ☐ YES ☐ NO

If yes, indicate the corrective action taken in Section 4.

☐ **Demolition Sign-off Inspection**

Onsite Plans ☐ YES ☐ NO

TR1 Sign-off..... ☐ YES ☐ NO

☐ **Stop Work Order Rescind**

Partial or Full Stop Work Order ☐ Partial ☐ Full

Stop Work Order complaint number _____

Violation Number(s) _____

Are copies of the violation on site?..... ☐ YES ☐ NO

Has all corrective action been taken to correct the violation(s)? ☐ YES ☐ NO

If yes, indicate the corrective action taken in Section 4.

☐ **DOB Violation Dismissal**

Violation Number(s) _____

Has all corrective action been taken to correct the violation(s)? ☐ YES ☐ NO

If yes, indicate the corrective action taken in Section 4.

☐ **Sidewalk Shed Removal** ☐ Partial ☐ Full

Has all exterior work been completed? ☐ YES ☐ NO

Have all temporary devices, equipment and tools been removed from setback?..... ☐ YES ☐ NO

Are windows and curtain walls completed?..... ☐ YES ☐ NO

Other than the sidewalk shed, has all exterior temporary construction ☐ YES ☐ NO
equipment been removed?

☐ **Removal from Site Safety** *(Site Safety Projects ONLY)*

- Has all exterior work been completed? ☐ YES ☐ NO
- Have all devices, equipment and tools been removed from roof setback? ☐ YES ☐ NO
- Are windows and curtain walls completed? ☐ YES ☐ NO
- Has all exterior temporary construction equipment been removed? ☐ YES ☐ NO
- Has the sidewalk shed been removed? ☐ YES ☐ NO

☐ **Other**

4	COMMENTS
----------	-----------------



**APPLICATION FOR BEST RECOMMENDATION FOR
MECHANICAL MEANS DEMOLITION**

Application must be typewritten.

**BEST USE ONLY
DEMOLITION #**

Structure and Location Information:

Number of structures at this address you intend to demolish (a separate application is required for each):

Name:

Company:

E-mail:

Phone:

Fax:

Application date:

☐ Bronx

☐ Brooklyn

☐ Manhattan

☐ Queens

☐ Staten Island

Structure type (check only one):

☐ House

☐ Garage

☐ Shed

☐ Commercial Building

☐ Other:

Building address:

Cross streets:

BIN:

Block:

Lot:

All AKA's ("Also-Known-As", if applicable):

BIS job # for demolition (DM) filing:

Other related BIS job #s:

Distance from nearest street corner (in feet):

Mechanical Means Information:

Description of mechanical equipment proposed for demolition:

☐ Requesting full mechanical demolition

☐ Requesting partial mechanical demolition

A plot plan must accompany this request. It must show:

- the size of the lot, the size, location and height of all structures on the lot of adjacent structures
- the structures which are to be demolished and the structures or portions thereof which are to be demolished by mechanical means
- the construction classification of the building to be demolished
- the mechanical means to be used(type of machinery) and proposed location of it
- the safety zone
- the location of the sidewalk shed, fences and other protective construction
- the width of the adjoining street

Agreement and Signature:

By signing below, I agree that if issued a mechanical means permit:

- A construction fence will be erected along the perimeter of job site. No persons other than the operator of the equipment will be permitted within the safety zone of demolition while the mechanical means method of demolition is in use. No part of the equipment, when in use will extend beyond the permitted boundaries. Letter of Request, Letter of Permission and Plot Plan must be available on the premises during course of demolition.
- All Building Department regulations will be followed when performing the demolition in accordance with Chapter 19 Article 6, section 27-1039d.
- All hand demolition will be completed and inspected by B.E.S.T. prior to commencement of any Mechanical demolition

Print Name:

Title:

Company:

Signature:

Date:

BEST Use Only

☐ Approved

☐ Disapproved

Reviewed by:

Signature:

Badge #

Date:

Supervisor:

Signature:

Badge #

Date:

Comments:

Purpose of form:

This form is required when submitting demolition submittal plans - required by BC 3306.5 on full demolition jobs and Alteration jobs that contain partial demolition work. The form must be submitted together with the plans prior to requesting a permit. The form must be completed by an appropriate professional.

Be sure to attach the appropriate job number sticker and write its related document number in the boxes at the upper right hand corner of the form.

If there are changes made to existing demolition submittal plans or to the information contained in a previously submitted DS1, submit an updated DS1 to supersede the older version.

1 Location Information

Enter the basic address information where the work will take place. Indicate which floor(s) will be affected by the work.

2 Preparer Information

Enter all details regarding the professional that is preparing the demolition submittal plans.

Indicate the relationship of the preparer to the job. For example, if the preparer is a PW1 applicant that also designed the architectural plans, check off the "PW1 Applicant" check box.

3 Demolition Certification by Preparer

The preparer must certify all facts about the submission in this section. Indicate if this is an initial DS1 (submitted for the first time), or if this DS1 is being submitted to supersede a previously submitted DS1(s). Enter the scan code(s) of the DS1(s) being superseded by this DS1. The scan code is an alpha-numeric code that begins with 'SC', and it can be found on the top right section of the scanned DS1 form.

3A Indicate the type of demolition that will occur on the site - Full Demolition (DM) or Partial Demolition (ALT).

3B Indicate the characteristic of demolition work that will take place on the work site. Check off all check-boxes as applicable. Enter the types of mechanical demolition equipment that will be utilized on the site - a general description of each type of equipment is sufficient.

Note: authorized preparers (i.e. P.E., R.A., or both) for each type of demolition are indicated in brackets.

3C If this DS1 form is being submitted as a result of changes made to previously submitted plans, enter the scan code of the accompanying A11 form(s) submitted with the revised plans.

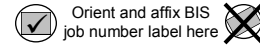
The scan code is an alpha-numeric code that begins with 'SC', and it can be found on the top right section of the A11 form.

3D Check the check-box to certify the preparer statement. The preparer's signature and seal are required for all certification forms.



DS1: Demolition Submittal Certification Form

Must be typewritten.



Demolition drawings must be submitted along with this form.

BIS Document No., required:

1 Location Information Required for all certifications.

House No(s)

Street Name

Borough

Floor(s)

2 Preparer Information Required for all certifications.

Check all that apply: ☐ PW1 Applicant ☐ P.E./R.A. Other Than PW1 Applicant

Last Name

First Name

Middle Initial

Business Name

Business Telephone

Business Address

Business Fax

City

State

Zip

Mobile Telephone

License Type

☐ P.E.

☐ R.A.

☐ Other:

License Number

3 Demolition Description and Certification Required prior to permit. Subsequent revisions must be submitted to the Department.

Indicate Submittal Type: ☐ Initial submittal ☐ Supersede existing submittal(s) - indicate scan code(s) of DS1 being superseded below
Scan Code(s):

3A Demolition Type: ☐ Full Demolition (DM) ☐ Partial Demolition (Alteration)

3B Demolition work will involve, per BC 3306.5 (authorized preparers indicated in parenthesis): Check all that apply

☐ Non-mechanical demolition means and methods **only** (P.E. or R.A. only) - **stop and proceed the section 3C**

☐ Use of hand-held mechanical equipment (P.E. or R.A. only)

☐ Work on interior of building

☐ Use of other than hand-held mechanical equipment (P.E. or R.A. only)

☐ Work on exterior of building

☐ Raising and/or moving of a building

General description of the type(s) of mechanical demolition equipment used:

3C If superseding a previous plan submittal, indicate scan code(s) of the AI1: (Note: any revisions/additions/deletions to the original plan submittal must be accompanied by an AI1 form detailing all the plan changes)

3D Statement by demolition document preparer:

I have prepared the attached demolition submittal documents in accordance with BC 3306 and certify that they are in compliance.

I hereby state that all of the above information is correct and complete to the best of my knowledge. Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both.

Name (please print)

Signature

Date

P.E./R.A. Seal (apply seal, then sign and date over seal)



PW1: Plan / Work Application

Must be typewritten.

☒ Orient and affix BIS
job number label here ☒

1 Location Information *Required for all applications.*

House No(s)	Street Name			
Borough	Block	Lot	BIN	C.B. No.
Work on Floor(s)			Apt. / Condo No(s)	

2 Applicant Information *Required for all applications. Fax, mobile telephone and e-mail address are optional information.*

Last Name		First Name		Middle Initial
Business Name			Business Telephone	
Business Address			Business Fax	
City	State	Zip	Mobile Telephone	
E-Mail			License Number	
Choose one: <input type="checkbox"/> P.E. <input type="checkbox"/> R.A. <input type="checkbox"/> Sign Hanger <input type="checkbox"/> R.L.A. <input type="checkbox"/> Other: _____				

3 Filing Representative *Complete only if different from applicant specified in section 2. Fax, mobile phone, and e-mail are optional info.*

Last Name		First Name		Middle Initial
Business Name			Business Telephone	
Business Address			Business Fax	
City	State	Zip	Mobile Telephone	
E-Mail			Registration Number	

4 Filing Status *Required for all applications. Choose one and provide specified associated information.*

<input type="checkbox"/> Initial Filing 5, 7, 11, 12A, 25-26 Choose only one: <input type="checkbox"/> Standard Plan Examination or Review <input type="checkbox"/> Professional Certification PC1, POC1 <input type="checkbox"/> Professional Certification of Objections AI1	<input type="checkbox"/> Prior to Approval Actions 25-26 <input type="checkbox"/> Amend Existing Filing 4A <input type="checkbox"/> Subsequent Filing 6-7, 8A (Alt-2 only), 11 <input type="checkbox"/> Post Approval Amendment (PAA) 4A, 6, 24-25 Will PAA affect filing fees? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> New (Superseding) Applicant 4A, 25-26	<input type="checkbox"/> Reinstatement 24-26 <input type="checkbox"/> Withdrawal 26 <input type="checkbox"/> Specified in 4A and 6 <input type="checkbox"/> Entire Job 4A Indicate existing document number affected by filing: _____
---	---	---

5 Job/Project Types *Choose one and provide specified associated information.*

<input type="checkbox"/> Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5) 6A-E, 8B-C, 8F, 9-10, 12, 13C-F, 14, 18-20, 22 & PW1A, PD1	<input type="checkbox"/> Alteration Type 2 5A, 6A-D, 8A-B, 9-10, 13C-E, & 14, 20, 22 <input type="checkbox"/> Alteration Type 3 5A, 6B-F, 8C, 9-10, 13C-E, 20, 22 <input type="checkbox"/> New Building 6A-E, 8F, 9A, 9C-K, 10, 12 & 13A-E, 14, 18-20, PW1A, PD1 <input type="checkbox"/> Sign 5A, 6B-D, 9A, 9D, 22-23	<input type="checkbox"/> Full Demolition 6B, 8D, 9A & 9C-D, 9K, 13D-E, 14, 21A, 22 <input type="checkbox"/> Subdivision 9A, 9D, 12A-B <input type="checkbox"/> <input type="checkbox"/> Condominium <input type="checkbox"/> Improved 17 5A Directive 14 acceptance requested? <input type="checkbox"/> Yes <input type="checkbox"/> No
---	---	---

6 Work Types *Select all that apply but no more than allowed by job and filing type. "OT" required on all NB and Alteration 1 initial applications.*

6A <input type="checkbox"/> BL - Boiler PW1C <input type="checkbox"/> FA - Fire Alarm <input type="checkbox"/> FB - Fuel Burning PW1C	<input type="checkbox"/> FS - Fuel Storage PW1C <input type="checkbox"/> FP - Fire Suppression <input type="checkbox"/> MH - Mechanical	<input type="checkbox"/> PL - Plumbing PW1B <input type="checkbox"/> SD - Standpipe PW1B <input type="checkbox"/> SP - Sprinkler PW1B	6E <input type="checkbox"/> CC - Curb Cut 16 <input type="checkbox"/> OT/LAN - Landscape
6B <input type="checkbox"/> EQ - Construction Equipment 15	6C <input type="checkbox"/> OT/GC - General Construction	6D <input type="checkbox"/> OT - Other, describe: _____	6F <input type="checkbox"/> OT/ANT - Antenna <input type="checkbox"/> OT/BPP - Builders Pavement Plan 8D <input type="checkbox"/> OT/FPP - Fire Protection Plan <input type="checkbox"/> OT/MAR - Marquee 8E, 26B

7 Plans/Construction Documents Submitted *Plans are required for most applications.*Are plans being submitted with this PW1? ☐ Yes ☐ No *If yes, do the plans include:* ☐ FO — Foundation ☐ EN — Energy Analysis**8 Additional Information**

8A	WT	Cost	WT	Cost	WT	Cost	8B	Is a building enlargement proposed?	8C	Estimated Job Cost \$
								<input type="checkbox"/> No enlargement is proposed		8D Street Frontage: _____ linear ft.
								<input type="checkbox"/> Yes <i>12, PD1</i>		8E Height: _____ ft. Width: _____ ft.
								<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical		8F Total Building Square Footage: _____ sq. ft.
								Additional Construction Floor Area: _____ sq. ft.		

9 Additional Considerations, Limitations or Restrictions9A Review is requested under which building code? ☐ 2014 ☐ 2008 ☐ 1968 ☐ Prior to 1968

<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
9B	<input type="checkbox"/> Alteration required to meet New Building requirements (28-101.4.5) <i>If yes, 13A-B</i>	<input type="checkbox"/> Change in number of dwelling units	
	<input type="checkbox"/> Alteration is a major change to exits	<input type="checkbox"/> Change in occupancy / use	
9C	<input type="checkbox"/> Façade Alteration	<input type="checkbox"/> Change is inconsistent with current certificate of occupancy	
	<input type="checkbox"/> Adult Establishment <i>If yes, plot diagram (except DM)</i>	<input type="checkbox"/> Change in number of stories	
	<input type="checkbox"/> Compensated Development (Inclusionary Housing)	<input type="checkbox"/> Infill Zoning	
	<input type="checkbox"/> Low Income Housing (Inclusionary Housing)	<input type="checkbox"/> Loft Board	Yes No Work Includes:
	<input type="checkbox"/> Single Room Occupancy (SRO) Multiple Dwelling	<input type="checkbox"/> Quality Housing	<input type="checkbox"/> Prefab wood I-joists
	<input type="checkbox"/> Filing includes Lot Merger / Reapportionment <i>If yes, 17</i>	<input type="checkbox"/> Site Safety Job/Project	<input type="checkbox"/> Structural cold-formed steel
		<input type="checkbox"/> Included in LMCCC	<input type="checkbox"/> Open-web steel joists
9D	<input type="checkbox"/> Landmark	<input type="checkbox"/> Filing to address violations (list #s—max. 5):	
	<input type="checkbox"/> Little "E" or RD Site		
	<input type="checkbox"/> Unmapped/CCO Street		
	<input type="checkbox"/> Requesting legalization of work where no work without a permit violations have been issued		
	<input type="checkbox"/> Other (please specify on line provided below):	<input type="checkbox"/> Filing to comply with Local Laws (list #s—max. 2)	
	<input type="checkbox"/> CRFN(s) <i>Restrictive Declaration / Easement (max. 4):</i>		
	<input type="checkbox"/> CRFN(s) <i>Zoning Exhibit (I, II, III, etc. - max. 4):</i>		
9E	<input type="checkbox"/> BSA Calendar Numbers (max. 5):		
9F	<input type="checkbox"/> CPC Calendar Numbers (max. 5):		
9G	<input type="checkbox"/> Work includes lighting fixture and/or controls, installation or replacement. [ECC §404 and §505]		
9H	<input type="checkbox"/> Work includes modular construction under New York State jurisdiction	9I	High Rise Team tracking #:
	<input type="checkbox"/> Work includes modular construction under New York City jurisdiction		
9J	<input type="checkbox"/> Structural peer review required per BC 16. <i>If yes, provide NYS P.E. license number:</i>		
9K	<input type="checkbox"/> Work includes permanent removal of standpipe, sprinkler or fire suppression related systems		
9L	<input type="checkbox"/> Work includes partial demolition as defined in AC §28-101.5, or the raising/moving of a building <i>If yes, 21B</i>		
	<input type="checkbox"/> Structural stability affected by proposed work		

10 NYCECC Compliance *New York City Energy Conservation Code*☐ To the best of my knowledge, belief and professional judgment, all work under this application is in compliance with the NYCECC*Code Compliance Path (choose one): ☐ NYCECC ☐ ASHRAEEnergy Analysis (choose one): ☐ Tabular Analysis ☐ REScheck ☐ COMcheck ☐ Energy Modeling (EN1)☐ To the best of my knowledge, belief and professional judgment, all work under this application is exempt from the NYCECC* in accordance with one of the following (choose one):☐ The work is an alteration of a State or National historic building.☐ The scope of the work is entirely in a "low-energy building" and is limited to the building envelope.☐ The entire scope of work involves a temporary structure and/or one or more of the following work types: FA, FP, SD, SP, FS, EQ, CC, OT/BPP, OT/FPP. Other work types are not exempt.☐ This is a post-approval amendment and exempt under a prior edition of the energy code. See statement of exemption on attached drawings.

11B Primary application job no.

12A	District(s)	12B	Street legal width:	ft.			
	Overlay(s)		Street Status:	<input type="checkbox"/> Public <input type="checkbox"/> Private			
	Special Dist.(s)		<i>If the zoning lot includes multiple tax lots, list all tax lots here ►</i>				
	Map Number						

12C Proposed:	Use*	Zoning Floor Area	District	FAR	Proposed Lot Details:	Proposed Yard Details:
		sq. ft.			Lot Type: <input type="checkbox"/> Corner <input type="checkbox"/> Interior <input type="checkbox"/> Through	Check here if no yards: <input type="checkbox"/> or
		sq. ft.			Lot Coverage %	Front Yard ft.
		sq. ft.			Lot Area sq. ft.	Rear Yard ft.
		sq. ft.			Lot Width ft.	Rear Yard Equivalent ft.
		sq. ft.			Proposed Other Details:	Side Yard 1 ft.
		sq. ft.			Enclosed Parking? <input type="checkbox"/> Yes <input type="checkbox"/> No	Side Yard 2 ft.
Proposed Totals		sq. ft.			If yes, no. of parking spaces:	
Existing Total		sq. ft.			Perimeter Wall Height ft.	

**Use can be one of the following: residential, commercial, manufacturing, or community facility. List only one use per line.*

13A Primary structural system, *choose one*: ☐ Masonry ☐ Concrete (CIP) ☐ Concrete (Precast)
☐ Wood ☐ Steel (Structural) ☐ Steel (Cold-Formed) ☐ Steel (Encased in Concrete)

13B	Existing		Proposed		13D Building Type: <input type="checkbox"/> 1, 2, or 3 Family <input type="checkbox"/> Other			
	Structural Occupancy/Risk Cat.				Mixed use building? [†] <input type="checkbox"/> Yes <input type="checkbox"/> No			
	Seismic Design Cat.		2014 Code Designations?		2014 Code Designations?			
13C	Occupancy Classification*	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes**		13E	Existing	Proposed
	Construction Classification	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		Building Height	ft.	ft.
	Multiple Dwelling Classification					Building Stories		
						Dwelling Units		
13F	Building was originally erected pursuant to which Building Code: <input type="checkbox"/> 2014 <input type="checkbox"/> 2008 <input type="checkbox"/> 1968 <input type="checkbox"/> Prior to 1968							
	The earliest Code with which this building or any part of it is required to comply: <input type="checkbox"/> 2014 <input type="checkbox"/> 2008 <input type="checkbox"/> 1968 <input type="checkbox"/> Prior to 1968							

☐ Not Applicable ☐ On-Site ☐ Off-Site ☐ Under 300 cubic yards

☐ Chute ☐ Sidewalk Shed Construction Material: _____
☐ Fence Size: _____ linear ft. BSA/MEA Approval No. _____
☐ Supported Scaffold ☐ Other: _____

Original tax lots being merged or reapportioned (if applicable):														
										Existing		Proposed		
										Yes	No	Yes	No	
Tentative tax lot numbers (new tax lots only):														
										Fire Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										Fire Suppression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										Sprinkler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										Standpipe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19 Open Spaces

	Existing	Proposed		Existing	Proposed
Plaza Area	sq. ft.	sq. ft.	Arcade Area	sq. ft.	sq. ft.
Parking Area	sq. ft.	sq. ft.	Parking Spaces		
Loading Berths	sq. ft.	sq. ft.	Loading Berths		

20 Site Characteristics

Yes No

- ☐ ☐ Tidal Wetlands
☐ ☐ Coastal Erosion Hazard Area
☐ ☐ Fire District

Yes No

- ☐ ☐ Freshwater Wetlands
☐ ☐ Urban Renewal
☐ ☐ Flood Hazard Area *If yes, 20A*

20A Flood Hazard Area Information

Yes No

- ☐ ☐ Substantial improvement?
☐ ☐ Substantially damaged?
☐ ☐ Floodshields part of proposed work?

21 Demolition Details **Mechanical equipment other than handheld devices to be used for demolition or removal of debris (BC §3306.4).*

Yes No

- 21A ☐ ☐ Demo. filing is for a secondary structure? *If yes, specify structure being demolished:*
☐ ☐ Mechanical means* from out of building? *If yes, mechanical means will demolish:* ☐ entire structure or ☐ part of structure
☐ ☐ Mechanical means* from within building? *If yes, describe equipment proposed:*
 21B ☐ ☐ Demolition work affects the exterior building envelope
☐ ☐ The scope of work involves raising/moving of a building

22 Asbestos Abatement Compliance *Choose one.*

- ☐ The scope of work requires related asbestos abatement as defined in the regulations of the NYC Department of Environmental Protection (DEP).
☐ The scope of the work is **not** an asbestos project as defined in the regulations of the NYC DEP. *DEP Control # is required.*
 DEP ACP-5 Control No. _____
☐ The scope of work is exempt from the asbestos requirement as defined in the regulations promulgated by the NYC DEP (15 RCNY 1-23(b)) or is an alteration to a building constructed pursuant to plans submitted for approval on or after April 1, 1987, in accordance with § 28-106.1.

23 Sign

Purpose:	Type:	Estimated Cost: \$	23A Illuminated type: <input type="checkbox"/> Direct <input type="checkbox"/> Flashing <input type="checkbox"/> Indirect
<input type="checkbox"/> Advertising	<input type="checkbox"/> Illuminated 23A	Total Square Feet: _____	Yes No
<input type="checkbox"/> Non-Advertising	<input type="checkbox"/> Non-Illuminated	Height above Curb: _____ ft. in.	<input type="checkbox"/> <input type="checkbox"/> If sign projects beyond building line, is owner billed for annual permit? <i>If no, specify in 26B</i>
Location: <input type="checkbox"/> Ground <input type="checkbox"/> Roof 23B <input type="checkbox"/> Wall	Height above Roof: _____ ft. in.		
Yes No			23B <input type="checkbox"/> <input type="checkbox"/> Is roof sign tight, closed or solid?
<input type="checkbox"/> <input type="checkbox"/> Is sign inside building line? <i>If no, sign projects by:</i> _____ ft. in.			23C Sign wording. <i>If extensive, provide only key wording.</i>
<input type="checkbox"/> <input type="checkbox"/> Designed for changeable copy? <i>If no, 23C</i>			
<input type="checkbox"/> <input type="checkbox"/> Does an OAC have an interest in this sign or location? <i>If yes, 23G</i>			23D Distance from Arterial Highway: _____ ft.
<input type="checkbox"/> <input type="checkbox"/> Within 900' and within view of an arterial highway? <i>If yes, 23D</i>			23E Distance from Park 1/2 acre or more: _____ ft.
<input type="checkbox"/> <input type="checkbox"/> Within 200' and within view of a park 1/2 acre or more? <i>If yes, 23E</i>			23F OAC Sign Number: _____
.....► <i>If answer is "yes" to either of the above two questions and this is an advertising sign, OAC sign number is required in section 23F</i>			23G OAC Registration Number: _____

24 Comments *Place additional comments on an AI-1 form. See Guide for proper incorporation of professional certification statements.*

25 Applicant's Statements and Signatures *Required for all applications.*

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department. I prepared or supervised the preparation of the construction documents and specifications herewith submitted and to the best of my knowledge and belief, the construction documents and work shown thereon comply with the provisions of the NYC Administrative Code and other applicable laws and rules, ☐ (←check here if) except as set forth in the accompanying documents. I acknowledge that I have read and complied with all instructions pertaining to this application and supplementary schedules submitted. **Cluster Development Statement** (if applicable): I hereby state that all specifications relating to this job are identical to those previously filed under the group lead job number, except as specified herein.

For initial New Building and Alteration 1 applications filed under the 2008 or 2014 NYC Building Code only: does this building qualify for high-rise designation? ☐ Yes ☐ No

Directive 14 initial applications only: I certify that the construction documents submitted and all construction documents related to this application do not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy. ☐ Yes ☐ No

Name (print): _____

Sign and Date: _____

P.E. / R.A. Seal (apply seal; then, sign and date over seal)

26 Property Owner's Statements and Signatures

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department. Furthermore, I understand that I am responsible for insuring that a final inspection be performed when the permitted work is complete, and that a satisfactory report of final inspection be submitted, along with all required submittal documents, so that the NYC Department of Buildings may issue a letter of completion or certificate of occupancy within the time prescribed by law.

I have authorized the applicant to file this application for the work specified herein and all future amendments. I will not knowingly authorize any work that is not in compliance with all applicable laws, rules, and regulations.

Yes No

☐ ☐ **Fee Exemption Request (Non-Profit Owned and Operated)**

In accordance with Administrative Code §28-112.1, Exception 1, I certify that the deed holder is a corporation or association organized and operated exclusively for the purposes indicated in such section, and that the property is used exclusively by such entity for such purposes. ★

☐ ☐ **Fee Exemption Request (NYCHA/HHC, NYC Agency, or Other Government Owned and Operated)**

The building or any part thereof to be constructed, renovated, altered or demolished is owned and operated exclusively for the purposes of the NYC Agency, NYC Authority, NYS Agency, Federal Government or any other government entity. ★

☐ ☐ **Owner's Certifications Regarding Occupied Housing**

The site of the building to be altered or demolished, or the site of the new building to be constructed, contains one or more occupied dwelling units that will remain occupied during construction. These occupied dwelling units have been clearly identified on the submitted construction documents.

☐ ☐ The site of the building to be altered or demolished, or the site of the new building to be constructed, contains occupied housing accommodations subject to rent control or rent stabilization under Chapters 3 and 4 of Title 26 of the New York City Administrative Code. **If yes, select one of the following:**

☐ The owner is not required to notify the New York State Homes and Community Renewal (NYSHCR) of the owner's intention to file because the nature and scope of the work proposed, pursuant to NYSHCR regulations, does not require notification.

☐ The owner has notified the New York State Homes and Community Renewal (NYSHCR) of its intention to file such construction documents/apply for such permit and has complied with all requirements imposed by the regulations of such agency as preconditions for such [filing/application].

Provide date NYSHCR notified: _____

☐ ☐ **Owner's Certification for Directive 14 Applications (if applicable)**

I have read and am fully aware of the applicant's statement that the construction documents submitted and all construction documents related to this application will not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy and the work is not inconsistent with the current certificate of occupancy. Furthermore, I understand that I am responsible for retaining a qualified design professional to perform a final inspection when the permitted work is complete and this professional must submit a satisfactory final inspection report to the NYC Department of Buildings within the time following inspection prescribed by Department rule.

Notes for Section 26A: Section required if unit owner signed Section 26. Signature required for authorized representative of Condo or Co-Op board.

★ For fee waivers, please see the PW1 User Guide

Owner ☐ Individual ☐ Partnership ☐ NYCHA / HHCType: ☐ Corporation ☐ Other Government ☐ NYC Agency☐ Condo Unit Owner or Co-Op Tenant-shareholder 26AIs the deed holder a non-profit organization? ☐ Yes ☐ No

Name (please print): _____

Relationship to Owner: _____

Business Name/Agency: _____

Street Address: _____

City: _____

State: _____

Zip: _____

Telephone Number: _____

Fax: _____

E-Mail Address: _____

Signature and Date ► _____

26A Condo/Co-Op Board *See note in bottom left corner of page.*

Name (please print): _____

Title: _____

Street Address: _____

City: _____

State: _____

Zip: _____

Telephone Number: _____

Fax: _____

E-Mail Address: _____

Signature and Date ► _____

26B Lessee Responsible for Annual Sign or Marquee Permit

Name (please print): _____

Relationship to Owner: _____

Business Name/Agency: _____

Street Address: _____

City: _____

State: _____

Zip: _____

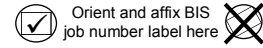
Telephone Number: _____

Fax: _____

E-Mail Address: _____



PW1B: Schedule B
Plumbing, Sprinkler, Standpipe
Must be typewritten.



Page 1 of

1 Location Information *Required for all applications.*

House No(s)

Street Name

Borough

Block

Lot

BIN

CB No.

Work on Floor(s)

2 Work Type Information *Required for all applications. Select all that apply.*

Filing components/fixtures? ☐ Yes ☐ No

☐ Plumbing - PL

☐ Sprinkler - SP

☐ Standpipe - SD

Cost: \$

Cost: \$

Cost: \$

Total sprinkler heads in 8B:

Total sprinkler heads in 8A:

To remove violation(s): 1)

To remove violation(s): 1)

To remove violation(s): 1)

2)

2)

2)

3 Drainage Information

Storm Drainage Discharges into: *select one.*

Sanitary Drainage Discharges into: *select one.*

☐ Storm Sewer ☐ Combined Sewer ☐ Private Disposal

☐ Sanitary Sewer ☐ Combined Sewer ☐ Private Disposal

4 Sewer Work *Select all that apply.*

☐ HCP-1/HCP-2

☐ Site Connection

☐ Septic Tank

5 Cap / Remove / Replace / Relocate Components *If this section is completed, components are required.*

☐ Cap or Remove

Describe all:

☐ Replace or Relocate

Describe all:

6 Gas and Gas Equipment Data

Gas piping involved? ☐ Yes ☐ No

Describe gas fired equipment:

Total Location(s), floor/apt. - list all that apply:

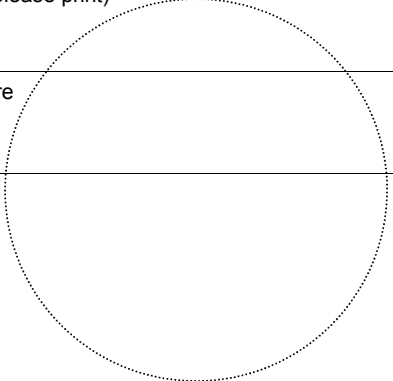
Meters total:

Risers total:

Gas Usage: ☐ Heat ☐ Dryer ☐ Water Heater ☐ Tankless Coil
☐ HVAC ☐ Cooking ☐ Fire Place ☐ Boiler Pilot for Oil Burner
☐ Other:

7 Applicant's Statements and Signatures *Required for all applications.*

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both.

Name (please print)	
Signature	Date
	
P.E. / R.A. Seal (apply seal, then sign and date over seal)	

8 Equipment Information *For new work only.*

System (work type)	Components (Piping / Equipment / Fixture)	Floors indicate no. of proposed components and/or "X" for piping															
8A Sprinkler (SP) <i>Must not be off domestic.</i>	P* Sprinkler Piping - Dry																
	P* Sprinkler Piping - Wet																
	E* Dry Pipe Valve																
	E* Booster Pump - SP																
	F Floor/Riser Control Valve																
	F Siamese FDC																
	F Sprinkler Heads																
	F Sprinkler Heads over 999																
8B Sprinkler (PL)**	F Sprinkler Heads (thirty or less)																
8C Fire Standpipe (SD)	P* Standpipe Piping																
	E* Fire Pump																
	E* Special Service Fire Pump																
	F Floor/Riser Control Valve																
	F Hose Cabinet/Rack/Valve																
	F Siamese FDC																
8D Water/San. (PL)	P* Sanitary Piping (Soil & Venting)																
	P* Water Piping																
	P Water Service Piping																
	E Sewer Ejection Pump																
	E Submeters																
	F Bathtubs/Whirlpools/Hot Tub/Sauna																
	F Bidet																
	F Chiller/Cooler																
	F Dishwasher																
	F Domestic Water Tank/Pump																
	F Drinking Fountain																
	F Floor Drain																
	F Grease Trap/Oil Separator/GRD																
	F Ice Maker																
	F In-sink Garbage Disposal																
	F Lavatory (Common Wash Basin)																
	F Laundry - Standpipe																
	F Pool																
	F RPZ/Backflow Preventer (Primary)																
	F RPZ/Backflow Preventer (Secondary)																
	F Sink - Non Residential																
	F Sink - Residential																
	F Stall Shower																
	F Tankless Coil																
	F Toilet (Water Closet)																
	F Urinal																
	F Washing Machine																
	F Water Heater (Non-Gas)																
8E Storm (PL)	P* Storm Drainage Piping																
	E Sump Pump																
	F Area/Yard Drain																
	F Detention Tank																
	F Dry Well/Retention																
	F Roof Drain																
8F Gas (PL)	P* Gas Piping																
	E Emergency Shut-off Valve																
	E* Fire Suppression Shut-off Valve																
	E Gas Booster Pump																
	F Cooking Equipment (non-residential)																
	F Cooking Equipment (residential)																
	F Gas Boiler (<350K, non-comm,<6 family)																
	F Gas Burner																
	F Gas Dryer																
	F Gas Furnace																
	F Gas Meter																
	F Gas Water Heater																
8G Medical (PL)	P* Medical Gas Piping																
	E Assorted Medical Equipment																

** Must be off domestic.

* Indicates test **may** be required.



PW2: Work Permit Application

Must be typewritten.

☒ Orient and affix BIS
job number label here ☒

BIS Document No., required:

1 Reason For Filing *Required for all applications.*

- ☐ Initial Permit *Complete all sections.* Expected work start date: _____ ☐ Renewal Permit with changes *Complete all sections.*
☐ No Work Permit ☐ Renewal Permit without changes 1, 3, 4, 7 - 12

2 Location Information *Required for all applications.*

House No(s)	Street Name			
Borough	Block	Lot	BIN	C.B. No.
Work on Floor(s)			Apt. / Condo No(s)	

3 Type of Permit *Choose one and complete any appropriate sub-choices or other information.*

- | | | | | |
|---|--|--|---------------------------------------|--|
| <input type="checkbox"/> Alteration | <input type="checkbox"/> Curb Cut | <input type="checkbox"/> Fuel Burning | <input type="checkbox"/> Plumbing 3C | 3A Electrical application no. for shed lighting: |
| <input type="checkbox"/> Filed as NB (28-101.4-5) | <input type="checkbox"/> Demolition and Removal | <input type="checkbox"/> Gas | <input type="checkbox"/> Sign | |
| <input type="checkbox"/> Boiler | <input type="checkbox"/> Fire Alarm | <input type="checkbox"/> Oil | <input type="checkbox"/> Sprinkler 3C | 3B Related fence job no. |
| <input type="checkbox"/> Construction Equipment | <input type="checkbox"/> Fire Suppression System | <input type="checkbox"/> Fuel Storage | <input type="checkbox"/> Standpipe 3C | 3C Secondary permit description (if applies): |
| <input type="checkbox"/> Chute <input type="checkbox"/> Fence | <input type="checkbox"/> Foundation / Earthwork | <input type="checkbox"/> Mechanical / HVAC | | |
| <input type="checkbox"/> Sidewalk Shed 3A | Area of site (sq. ft): | <input type="checkbox"/> New Building 3B | | |
| <input type="checkbox"/> Supported Scaffold | | | | |
| <input type="checkbox"/> Other: _____ | <input type="checkbox"/> Earthwork Only | | | |

- 3D ☐ Yes ☐ No Are you adding more than three stories? ☐ Yes ☐ No Are you removing one or more stories? *If yes, 8*
☐ Yes ☐ No Are you performing work in 50% or more of the area of the building? ☐ Yes ☐ No Are you demolishing 50% or more of the area of the building? *If yes, 8*
☐ Yes ☐ No Are you performing a vertical or horizontal enlargement adding more than 25% of the area of the building? ☐ Yes ☐ No Does your approved work include concrete? *If yes, is your concrete work completed?*
☐ Yes ☐ No *complete section 9*
☐ Yes ☐ No Are mechanical means to be used?

4 Applicant / Contractor *Required for all applications. (* Indicates optional.)*

Last Name	First Name	Middle Initial
Business Name		Business Telephone
Business Address		*Business Fax
City	State	Zip
*E-Mail	*Mobile Telephone	
Taxpayer ID		

- | | | |
|--|--------|---|
| <input type="checkbox"/> General Contractor | 4A, 4B | 4A Provide registration or tracking number: |
| <input type="checkbox"/> Fire Suppression Contractor | 4C, 4D | 4B Does work require a HIC license? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, HIC license number:</i> |
| <input type="checkbox"/> Master Plumber | 4C, 4D | 4C License Number: |
| <input type="checkbox"/> Oil Burner Installer | 4C, 4D | 4D Is applicant responsible for all work on this application? <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <input type="checkbox"/> Sign Hanger | 4D | <i>If no, describe work responsibility:</i> |
| <input type="checkbox"/> Professional Engineer | 4C, 6 | |
| <input type="checkbox"/> Registered Architect | 4C, 6 | |
| <input type="checkbox"/> Homeowner | | |

DOB approval required.



DEPT.BLDGS

FC-PW2.V3-03

Mechanical equipment other than handheld devices to be used for demolition or removal of debris (BC §3306.4).

5 Filing Representative *Complete if different from applicant specified in section 3. (* Indicates optional.)*

Last Name	First Name	Middle Initial
Business Name	Business Telephone	
Business Address	*Business Fax	
City	State	Zip
*E-Mail	*Mobile Telephone	
Registration Number		

6 Insurance P.E. / R.A. only *(* indicates required for all permits)*

☐ Liability Insurance *(NB permits only)* ☐ Workers' Compensation Insurance* ☐ Disability Insurance *

7 Construction Superintendent, Site Safety Coordinator, Site Safety Manager *Required if applicable. (* Indicates optional.)*

I, the applicant / contractor, hereby declare the scope of work filed under this permit application requires: *(choose one)*

☐ Construction Superintendent ☐ Site Safety Coordinator ☐ Site Safety Manager

Last Name	First Name	Middle Initial
Business Name	Telephone	
Address	*Fax	
City	State	Zip
*E-Mail	*Mobile Telephone	
Registration Number		

I, the undersigned, will perform, on behalf of the Contractor, all of the functions required of a Construction Superintendent, or Site Safety Coordinator, or Site Safety Manager (identified above) as set forth in the Department of Buildings rules and regulations.

Name (print)	Notarization State of New York, County of:	Notary Seal
Signature	Sworn to or affirmed under penalty of perjury day of 20	
Date	Notary Signature	

8 Demolition Subcontractor *Required if applicable. (* Indicates optional.)*

☐ Yes ☐ No Is the applicant/contractor named in section four performing the demolition work for this permit? If no, complete this section.

Last Name	First Name	Middle Initial
Business Name	Telephone	
Address	*Fax	
City	State	Zip
*E-Mail	*Mobile Telephone	
Registration Number		

I, the undersigned, will perform, on behalf of the Contractor, all of the functions required of a Demolition Subcontractor as set forth in the Department of Buildings rules and regulations.

Name (print)	Notarization State of New York, County of:	Notary Seal
Signature	Sworn to or affirmed under penalty of perjury day of 20	
Date	Notary Signature	

9 Concrete Information *Choose and complete any appropriate sub-choices.*

9A ☐ Yes ☐ No Are you requesting to exclude concrete work at this time from this permit? *If no, 9B* 9B ☐ Yes ☐ No Does your approved work include 2,000 cubic yards or more of concrete? *If yes, 10 and 11*

10 Concrete Subcontractor *Required if applicable. (* Indicates optional.)*

☐ Yes ☐ No Is the applicant/contractor named in section four performing the concrete work for this permit? If no, complete this section.

Last Name		First Name		Middle Initial
Business Name		Telephone		
Address		*Fax		
City	State	Zip	*Mobile Telephone	
*E-Mail		Registration Number		

I, the undersigned, will perform, on behalf of the Contractor, all of the functions required of a Concrete Subcontractor as set forth in the Department of Buildings rules and regulations.

Name (print)	Notarization State of New York, County of:	Notary Seal
Signature	Sworn to or affirmed under penalty of perjury day of 20	
Date	Notary Signature	

11 Concrete Safety Manager *Required if applicable. (* Indicates optional.)*

Last Name		First Name		Middle Initial
Business Name		Telephone		
Address		*Fax		
City	State	Zip	*Mobile Telephone	
*E-Mail		Registration Number		

I, the undersigned, will perform, on behalf of the Contractor, all of the functions required of a Concrete Safety Manager (identified above) as set forth in the Department of Buildings rules and regulations.

Name (print)	Notarization State of New York, County of:	Notary Seal
Signature	Sworn to or affirmed under penalty of perjury day of 20	
Date	Notary Signature	

12 Applicant / Contractor Statements and Signatures *Required for all applications.*

The information in this application is correct and complete to the best of my knowledge and I assume responsibility for all statements on this form. I understand that if I am found after hearing to have knowingly or negligently made a false statement on this or any other document submitted to the Department, I may be subject to fine, imprisonment, and/or barred from filing further documents with the Department. I also understand it is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration.

I will comply with all applicable laws, rules and regulations including all insurance requirements, and, in addition.

- I hereby state if a Construction Superintendent, Site Safety Coordinator, Site Safety Manager, Demolition Subcontractor, Concrete Subcontractor, or Concrete Safety Manager is required for this application I have hereby advised the individual listed herein he or she is designated as such and hereby certify he or she is registered and in good standing with the NYC Department of Buildings.
- I hereby state this renewal application with no change to Applicant, Filing Representative, Construction Superintendent, Site Safety Coordinator, Site Safety Manager, Subcontractors, Concrete Safety Manager or insurance is for the work as originally filed or as officially amended.
- In accordance with §28-104.8 of the Administrative Code, I hereby declare I am authorized by the owner of the above-referenced premises to make this application for a permit to perform the work described herein. In accordance with Rule 101-16, I will post the permit in a conspicuous and visible location.
- ☐ Check here if the work authorized by this permit does NOT require adjacent property insurance.

Name (print)	Notarization (required if not licensee) State of New York, County of:	Licensee Seal or Notary Seal
Signature	Sworn to or affirmed under penalty of perjury day of 20	
Date	Notary Signature	

4 Design Applicant Information

Last Name	First Name	Middle Initial
Business Name	Business Phone	Business Fax
Business Address	Mobile Phone	
City	State	Zip
License Number	Choose One:	E-Mail
	<input type="checkbox"/> P.E. <input type="checkbox"/> R.A. <input type="checkbox"/> Sign Hanger <input type="checkbox"/> Other (specify) _____	

5 Owner/Lease Holder Information

Last Name	First Name	Middle Initial
Business Name	Business Phone	Business Fax
Business Address	Mobile Phone	
City	State	Zip
		E-Mail

6 Design Applicant's Statements and Signatures

I hereby state the information on this form is correct and complete to the best of my knowledge. I understand falsification of any statement is a misdemeanor and punishable by a fine, imprisonment, or both. I also understand it is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

Name (print)

Signature

Date

P.E. / R.A. Seal (apply seal, then sign and date over seal)

7 Owner's/Lease Holder's Statements and Signatures *Notary only required when submitting to obtain sign-off.*

I hereby state the information on this form is correct and complete to the best of my knowledge. I understand falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. I also understand it is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

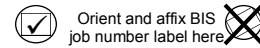
Name (print)	Notarization State of New York, County of:	Notary Seal
Signature	Sworn to or affirmed under penalty of perjury day of 20	
Date	Notary Public Signature	

Internal Use Only			
Work Area	PW3 Cost Details Validation	Comments (May include cost guidance.)	Initials
Plan Examination:	<input type="checkbox"/> Accept Original <input type="checkbox"/> Revised Cost Needed		
C of O:	<input type="checkbox"/> Accept Original <input type="checkbox"/> Revised Cost Needed		
Plan Examination/C of O:	<input type="checkbox"/> Accept Revised Submission (Resolved)		



PW4: Application for Certificate of Compliance for Equipment

Must be typewritten.



1 Filing Status

Job Number

2 Type of Equipment Required for <i>all</i> applications.
--

☐ Heating System (Not including boilers) ☐ Ventilation System ☐ Air Conditioning System ☐ Refrigeration

3 Location Information Required for <i>all</i> applications.

House No.	Street Name	Apt/Condo No(s)		
Borough	Block	Lot	BIN	CB No.
Work on Floor				

4 Applicant Information Required for <i>all</i> applications.
--

Last Name		First Name		Middle Initial
Business Name			Business Telephone	
Business Address			Business Fax	
City	State	Zip	Mobile Telephone	
E-Mail				
<input type="checkbox"/> P.E.	<input type="checkbox"/> R.A.	<input type="checkbox"/> Other	License Number	

5 Equipment Specifications Instructions for section (complete <i>all</i>).
--

Item—Manufacturer/Trade Name	Floor	No. of Items	Certification Number for Listing	Capacity: BTUs/CFM

6 Statement and Signatures Required for <i>all</i> applications.

The owner certifies that he authorizes the applicant to perform the proposed work in accordance with plans and specifications approved under said application. Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or both.

Owner Name _____
Title _____
Signature _____
Date _____

I hereby certify that the work indicated above has been done in a manner required by the Rules and Regulations of the Department of Buildings except where reported adversely.

Name: _____
Inspector's Signature: _____ Date Signed Off: _____

Name (please print) _____
Signature _____ Date _____

P.E. / R.A. Seal (apply seal, then sign and date over seal)

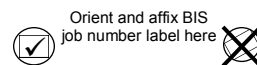
INTERNAL USE ONLY			
--------------------------	--	--	--

Examined and Recommended for Approval <input type="checkbox"/> Yes <input type="checkbox"/> No	Approved <input type="checkbox"/> Yes <input type="checkbox"/> No
Examiner	Borough Commissioner
Signature _____ Date _____	Signature _____ Date _____



PW7: Certificate of Occupancy /
Letter of Completion Folder
Review Request

Must be typewritten



1 Location Information

House No(s)

Street Name

Work Proposed on Floor No(s)

Borough

Block

Lot

BIN

CB No.

2 Requestor Information

Individuals Relationship to Job (example: applicant, owner filing representative)

Last Name

First Name

Middle Initial

Business Name

Business Telephone

Business Address

Business Fax

City

State

Zip

Mobile Telephone

E-Mail

License Number

3 Type of Request Choose one.

- ☐ Letter of Completion (Directive 14 or Non-Directive 14)
- ☐ TCO - Temporary Certificate of Occupancy (Borough Commissioner's Office may be required. All requirements must be fulfilled before a TCO will be issued) 3A
- ☐ Renewal of TCO - Temporary Certificate of Occupancy (Borough Commissioner's Office approval may be required. All requirements must be fulfilled before a TCO will be issued) 3A
- ☐ Final Certificate of Occupancy 3A
- 3A ☐ Change of address, block/lot, metes and bounds only (28-118.16.2)

4 Comments If additional space is required, write "see A1-1" here and submit a completed A1-1 form with this request.

5 Statements and Signatures

By signing below, I understand that all the information provided is true to the best of my knowledge and that falsification of any statement is a misdemeanor under § 26-124 of the NYC Administrative Building Code and punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine, or both.

Requestor Signature

Date

Borough Commissioner's Office TCO Authorization Do not write in this section.

Comments:

Authorized Name (please print)

☐ Approved

☐ Disapproved

Authorization Signature (if approved only)



Date

Disapproval Reasons Review request cannot be processed for the following reasons:

- ☐ Fees unpaid ☐ Open ECB/DOB Violation(s) ☐ Incomplete PAA ☐ Audit Conditions Pending / Job on Hold
- ☐ Missing inspection Sign-off(s): ☐ Construction ☐ Plumbing ☐ Electrical ☐ Other: _____
- ☐ Missing Required item(s): _____ ☐ TR-1 Error(s): _____
- ☐ Form(s) missing/incomplete: Form(s) _____ Section(s)/Reason(s) _____
- ☐ Other: _____

TR1: Technical Report Statement of Responsibility

This form must be typewritten

 Orient and affix BIS
job number label here 

1 Location Information *Required for all applications.*

House No(s)

Street Name

Work on Floor(s)

2 Applicant Information *Required for all applications.*

Choose all that apply: ☐ Design Applicant 3A, 4A, 5 ☐ Special Inspections Applicant 3B-D, 6-9 ☐ Progress Inspections Applicant 4B-D, 6-9

Last Name

First Name

Middle Initial

Business Name

Business Telephone

Business Address

Business Fax

City

State

Zip

Mobile Telephone

License Type choose one: ☐ P.E. ☐ R.A. ☐ Other:

License Number

Special Inspection
Agency Number

3 Special Inspection Categories *Required for all applications, continued on page 2; ■ indicates report required.*

3A Identification of Requirement			3B Identification of Responsibilities	3C Certificate of Complete Inspections / Tests	3D Withdraw Responsibilities
Y	N	Special Inspections	Initial & Date	Initial & Date	Initial & Date
<input type="checkbox"/>	<input type="checkbox"/>	Structural Steel – Welding	BC 1704.3.1		
<input type="checkbox"/>	<input type="checkbox"/>	Structural Steel – Details	BC 1704.3.2		
<input type="checkbox"/>	<input type="checkbox"/>	Structural Steel – High Strength Bolting	BC 1704.3.3		
<input type="checkbox"/>	<input type="checkbox"/>	Structural Cold-Formed Steel	BC 1704.3.4		
<input type="checkbox"/>	<input type="checkbox"/>	Concrete – Cast-In-Place	BC 1704.4		
<input type="checkbox"/>	<input type="checkbox"/>	Concrete – Precast	BC 1704.4		
<input type="checkbox"/>	<input type="checkbox"/>	Concrete – Prestressed	BC 1704.4		
<input type="checkbox"/>	<input type="checkbox"/>	Masonry	BC 1704.5		
<input type="checkbox"/>	<input type="checkbox"/>	Wood – Installation of High-Load Diaphragms	BC 1704.6.1		
<input type="checkbox"/>	<input type="checkbox"/>	Wood – Installation of Metal-Plate-Connected Trusses	BC 1704.6.2		
<input type="checkbox"/>	<input type="checkbox"/>	Wood – Installation of Prefabricated I-Joists	BC 1704.6.3		
<input type="checkbox"/>	<input type="checkbox"/>	Subgrade Inspection	BC 1704.7.1		
<input type="checkbox"/>	<input type="checkbox"/>	Subsurface Conditions – Fill Placement & In-Place Density	BC 1704.7.2 BC 1704.7.3		
<input type="checkbox"/>	<input type="checkbox"/>	Subsurface Investigations (Borings/Test Pits) ■ TR4	BC 1704.7.4		
<input type="checkbox"/>	<input type="checkbox"/>	Deep Foundation Elements ■ TR5	BC 1704.8		
<input type="checkbox"/>	<input type="checkbox"/>	Helical Piles (BB # 2014-020) ■ TR5H	BC 1704.8.5		
<input type="checkbox"/>	<input type="checkbox"/>	Vertical Masonry Foundation Elements	BC 1704.9		
<input type="checkbox"/>	<input type="checkbox"/>	Wall Panels, Curtain Walls, and Veneers ■	BC 1704.10		
<input type="checkbox"/>	<input type="checkbox"/>	Sprayed fire-resistant materials	BC 1704.11		
<input type="checkbox"/>	<input type="checkbox"/>	Mastic and Intumescent Fire-resistant Coatings	BC 1704.12		
<input type="checkbox"/>	<input type="checkbox"/>	Exterior Insulation and Finish Systems (EIFS)	BC 1704.13		
<input type="checkbox"/>	<input type="checkbox"/>	Alternative Materials - OTCR Buildings Bulletin # _____	BC 1704.14		
<input type="checkbox"/>	<input type="checkbox"/>	Smoke Control Systems	BC 1704.15		
<input type="checkbox"/>	<input type="checkbox"/>	Mechanical Systems	BC 1704.16		
<input type="checkbox"/>	<input type="checkbox"/>	Fuel-Oil Storage and Fuel-Oil Piping Systems	BC 1704.17		
<input type="checkbox"/>	<input type="checkbox"/>	High-Pressure Steam Piping (Welding)	BC 1704.18		
<input type="checkbox"/>	<input type="checkbox"/>	High Temperature Hot Water Piping (Welding)	BC 1704.18		
<input type="checkbox"/>	<input type="checkbox"/>	High-Pressure Fuel-Gas Piping (Welding)	BC 1704.19		
<input type="checkbox"/>	<input type="checkbox"/>	Structural Stability – Existing Buildings	BC 1704.20.1		
<input type="checkbox"/>	<input type="checkbox"/>	Excavations—Sheeting, Shoring, and Bracing	BC 1704.20.2		
<input type="checkbox"/>	<input type="checkbox"/>	Underpinning	BC 1704.20.3 BC 1814		
<input type="checkbox"/>	<input type="checkbox"/>	Mechanical Demolition	BC 1704.20.4		



TR1: Technical Report Statement of Responsibility

This form must be typewritten

3 Special Inspection Categories (continued) Required for all applications, continued on page 2: ■ indicates report required.

3A ← Identification of Requirement			3B Identification of Responsibilities	3C Certificate of Complete Inspections / Tests	3D Withdraw Responsibilities
Y	N	Special Inspections	Code/Section	Initial & Date	Initial & Date
<input type="checkbox"/>	<input type="checkbox"/>	Raising and Moving of a Building	BC 1704.20.5		
<input type="checkbox"/>	<input type="checkbox"/>	Soil Percolation Test - Private On-Site Storm Water Drainage Disposal Systems, and Detention Facilities ■	BC 1704.21.1.2		
<input type="checkbox"/>	<input type="checkbox"/>	Private On-Site Storm Water Drainage Disposal Systems, and Detention Facilities Installation	BC 1704.21.2		
<input type="checkbox"/>	<input type="checkbox"/>	Individual On-Site Private Sewage Disposal Systems Installation	BC 1704.22		
<input type="checkbox"/>	<input type="checkbox"/>	Soil Percolation Test - Individual On-Site Private Sewage Disposal Systems ■	BC 1704.22		
<input type="checkbox"/>	<input type="checkbox"/>	Sprinkler Systems	BC 1704.23		
<input type="checkbox"/>	<input type="checkbox"/>	Standpipe Systems	BC 1704.24		
<input type="checkbox"/>	<input type="checkbox"/>	Heating Systems	BC 1704.25		
<input type="checkbox"/>	<input type="checkbox"/>	Chimneys	BC 1704.26		
<input type="checkbox"/>	<input type="checkbox"/>	Fire-resistant Penetrations and Joints	BC 1704.27		
<input type="checkbox"/>	<input type="checkbox"/>	Aluminum Welding	BC 1704.28		
<input type="checkbox"/>	<input type="checkbox"/>	Flood Zone Compliance (attach FEMA elevation/dry floodproofing certificate where applicable)	BC 1704.29 BC G105		
<input type="checkbox"/>	<input type="checkbox"/>	Luminous Egress Path Markings ■ TR7	BC 1704.30 BC 1024.8		
<input type="checkbox"/>	<input type="checkbox"/>	Emergency and Standby Power Systems (Generators)	BC 1704.31		
<input type="checkbox"/>	<input type="checkbox"/>	Post-installed Anchors (BB# 2014-018, 2014-019)	BC 1704.32		
<input type="checkbox"/>	<input type="checkbox"/>	Seismic Isolation Systems	BC 1707.8		
<input type="checkbox"/>	<input type="checkbox"/>	Concrete Design Mix ■ TR3	BC 1905.3 BC 1913.5	Submit TR3 to complete this item	
<input type="checkbox"/>	<input type="checkbox"/>	Concrete Sampling and Testing ■ TR2	BC 1905.6 BC 1913.10	Submit TR2 to complete this item	

4 Progress Inspection Categories Required for all applications. ■ indicates report required.

4A ← Identification of Requirement			4B Identification of Responsibilities	4C Certificate of Complete Inspections / Tests	4D Withdraw Responsibilities
Y	N	Progress Inspections	Code/Section	Initial & Date	Initial & Date
<input type="checkbox"/>	<input type="checkbox"/>	Preliminary	28-116.2.1, BC 110.2		
<input type="checkbox"/>	<input type="checkbox"/>	Footings and Foundation	BC 110.3.1		
<input type="checkbox"/>	<input type="checkbox"/>	Lowest Floor Elevation	BC 110.3.2		
<input type="checkbox"/>	<input type="checkbox"/>	Structural Wood Frame	BC 110.3.3		
<input type="checkbox"/>	<input type="checkbox"/>	Energy Code Compliance Inspections ■ TR8	BC 110.3.5	Submit TR8 to complete this item	
<input type="checkbox"/>	<input type="checkbox"/>	Fire-Resistance Rated Construction	BC 110.3.4		
<input type="checkbox"/>	<input type="checkbox"/>	Public Assembly Emergency Lighting	28-116.2.2		
<input type="checkbox"/>	<input type="checkbox"/>	Final*	28-116.2.4.2, BC 110.5, Directive 14 of 1975, and 1 RCNY §101-10		

* For column 4C, indicate date when the actual final inspection was performed

5 Design Applicant's Statements and Signatures P.E./R.A. responsible for plans, choose both below and sign/seal.

☐ I have identified all of the special inspections, progress inspections and tests required for compliance.

☐ I certify that the Special Inspection and Approved Agencies engaged by the owner to supervise the work specified above are acceptable. (BC 1704.1)

Name (please print)

Signature

Date

P.E. / R.A. Seal (apply seal, then sign and date over seal)

6 Owner's Statement and Signature for Progress/Special Inspector *Required when inspection applicant identifies responsibilities.*

I have reviewed the information provided herein and, to the best of my knowledge and belief, attest to its accuracy. I approve the identification of the responsible inspector. Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by a fine or imprisonment, or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

Name (print)

Title

Signature

Date

7 Inspection Applicant's Identification of Responsibilities

Check all that apply below:

☐ For the **special inspections** indicated above in section 3, I certify that I am the principal/director of the special inspection agency accepting responsibility for conducting the inspections. I further certify that I have read the applicable sections of the New York City Construction Codes in connection with special inspections as well as 1 RCNY 101-06 Rule, which specifies the qualifications required for each inspection and that this agency meets those qualifications for each and every special inspection for which I/we take responsibility. I agree that both I and the agency will comply with all provisions of the New York City Construction Codes and the Rule. I am aware of the additional sanctions imposed on false filings by §28-211.1.2 of the Administrative Code.

☐ For the **progress inspections** indicated above in section 4, except energy code inspections on the TR8 form, and/or **concrete test items** indicated in section 3, I assume the responsibility and I personally, or where permitted by the New York City Construction Codes, qualified personnel under my direct supervision, will perform the required inspections and tests on such forms and in such matter as the Department requires or requests. I am aware of the additional sanctions imposed on false filings by §28-211.1.2 of the Administrative Code.

Final Inspection:

☐ I will make final inspection of the construction work, including those inspections during its progress necessary to my certification upon final inspection that all work substantially conforms to approved construction documents and applicable laws and rules. I will confirm that the performance of progress inspections and other inspections has been documented before I report the work complete. As prescribed by 1 RCNY 101-10, I will perform the final inspection within 1 year from the expiration of the last valid permit of the work.

Upon completion of the work and within 30 days of my final inspection, I will file a certification attesting to the fact that all work was performed and completed in accordance with the approved construction documents, laws and rules, except as reported otherwise.

☐ I understand that my failure to file a certification of completion or to notify the Department of my withdrawal of responsibilities within one year from expiration of the last valid permit may result in the loss of my privileges to file under Directives 2 and 14 of 1975 or issuance of a violation, or both. I am aware of the additional sanctions imposed on false filings by §28-211.1.2 of the Administrative Code.

☐ **Change of Applicant:** I am a newly designated individual responsible for the items specified herein and I hereby state that:

☐ None of the inspections/tests indicated herein have been performed to date by the previously designated individual.

☐ Some of the inspections/tests indicated herein have been performed by the previously designated individual, as indicated in the attached report.

I am aware of the additional sanctions imposed on false filings by §28-211.1.2 of the Administrative Code.

Name (please print)

Signature

Date

P.E. / R.A. Seal (apply seal, then sign and date over seal)

8 Inspection Applicant's Certification of Partial Completion

☐ I have completed the items specified herein and certify that all work performed substantially conforms to approved construction documents and has been performed in accordance with applicable provisions of the New York City Construction Codes and other designated rules and regulations, except as indicated in the attached report.

☐ **Withdrawal of Applicant:** I am withdrawing responsibility for the items of special/progress inspections and/or tests indicated herein and herewith submit the results or status of the work performed to date.

I am aware of the additional sanctions imposed on false filings by §28-211.1.2 of the Administrative Code.

Name (please print)

Signature

Date

P.E. / R.A. Seal (apply seal, then sign and date over seal)

9 Inspection Applicant's Certification of Full Completion

All work performed substantially conforms to approved construction documents and has been performed in accordance with applicable provisions of the New York City Construction Codes and other designated rules and regulations.

I am aware of the additional sanctions imposed on false filings by §28-211.1.2 of the Administrative Code.

Name (please print)

Signature

Date

P.E. / R.A. Seal (apply seal, then sign and date over seal)

NYCDOT



APPLICATION FOR ROADWAY/SIDEWALK PERMIT(S)

*** See reverse for instructions on how to complete this form.**

Rev. 9/15/10

SECTION A: Applicant Information

SECTION B: Work Information

SECTION C: Type of Permit Requested (Check All That Apply)

SECTION D: Work Zone Sketch (Include On Street, both Cross Streets, North Arrow, Sidewalk/Roadway widths and proposed Work Zone)

SECTION E: Permit Stipulations (For Official Use Only)

Additional Fees: Inspection:_____ Tunneling:_____ Other (Specify):_____

(For Official Use Only)

Approved for the Commissioner by: <div style="border: 1px solid black; height: 40px; width: 100%;"></div> Date <div style="border: 1px solid black; height: 40px; width: 100%; text-align: center;"> / / </div>	<u>The permit to be granted is subject to the following conditions:</u> The applicant agrees to comply with all laws and rules of the Department and any other applicable laws and rules. No permit shall be issued unless all applicable insurance and permit bonds are on file.
	19. Submitted by: _____ 20. Tel #:(_____) _____ - _____ <div style="text-align: center;">(Please Print)</div>
	21. Signed by: _____ 22. Date: _____ / _____ / _____ <div style="text-align: center;">(Authorized Representative of Applicant)</div>

INSTRUCTIONS FOR COMPLETING ROADWAY/SIDEWALK PERMIT APPLICATION PROPERLY

To ensure the proper processing of your application, please print all information CLEARLY.

SECTION A: Applicant Information

1. **Permittee ID#:** Provide the unique 5 digit identification number the Permittee received when he/she registered their company with the Department of Transportation. Permits will not be issued without a Permittee ID Number.
2. **Permittee Name:** Provide the name of the company to whom the permits will be issued and to whom the above Permittee ID# is assigned.
3. **Address:** Provide the Permittee's business mailing address.
4. **Tel #:** Provide the Permittee's daytime telephone number.
5. **E-mail:** Provide the Permittee's e-mail address.

SECTION B: Work Information

6. **Borough:** Check the Borough in which the proposed work will be performed (MN-Manhattan, BK-Brooklyn, QN-Queens, BX-Bronx, SI-Staten Island).
7. **OCMC File:** If one exists, provide the OCMC file number pertaining to the proposed work (e.g. MEC-08-001).
8. **Type of Pavement:**

a. **Roadway:** If working in the roadway, provide the surface material of the roadway where the proposed work will occur (e.g. Asphalt)

b. **Sidewalk:** If working in the sidewalk, provide the surface material of the sidewalk where the proposed work will occur (e.g. Concrete)
9. **DOB#:** Provide any applicable Department of Buildings permit numbers.
10. **House No.:** Provide the house number of the building where the proposed work will occur.
11. **On Street:** Provide the name of the street where the proposed work will occur.

11a. **Street Work On, If Different From Above:** Provide the name of the street where the physical proposed work will occur if it is not occurring on the same street to which the address applies. (e.g.: Work being performed for 55 Water Street, but excavation is on Old Slip).
12. **Between: and :** Provide the names of the two streets with which the On Street intersects (Cross Streets).
13. **For the Purpose of:** Provide the reason why you are applying for permits (e.g.: New Bldg. Construction, Repair Defective Sidewalk, etc.).
14. **Number of Openings:** Provide the number of proposed open excavations to be made.
15. **Area Size:** Provide the total square footage of the proposed work area.
16. **Frontage Length:** Provide the total linear footage of all proposed work. Provide total building's frontage length if performing new building or building alteration work.
17. **Work Start Date:** Provide the date when the proposed work is expected to commence. (May be changed by NYC DOT to reflect permit restrictions)
18. **Work End Date:** Provide the anticipated completion date of the proposed work. (May be changed by NYC DOT to reflect permit restrictions)

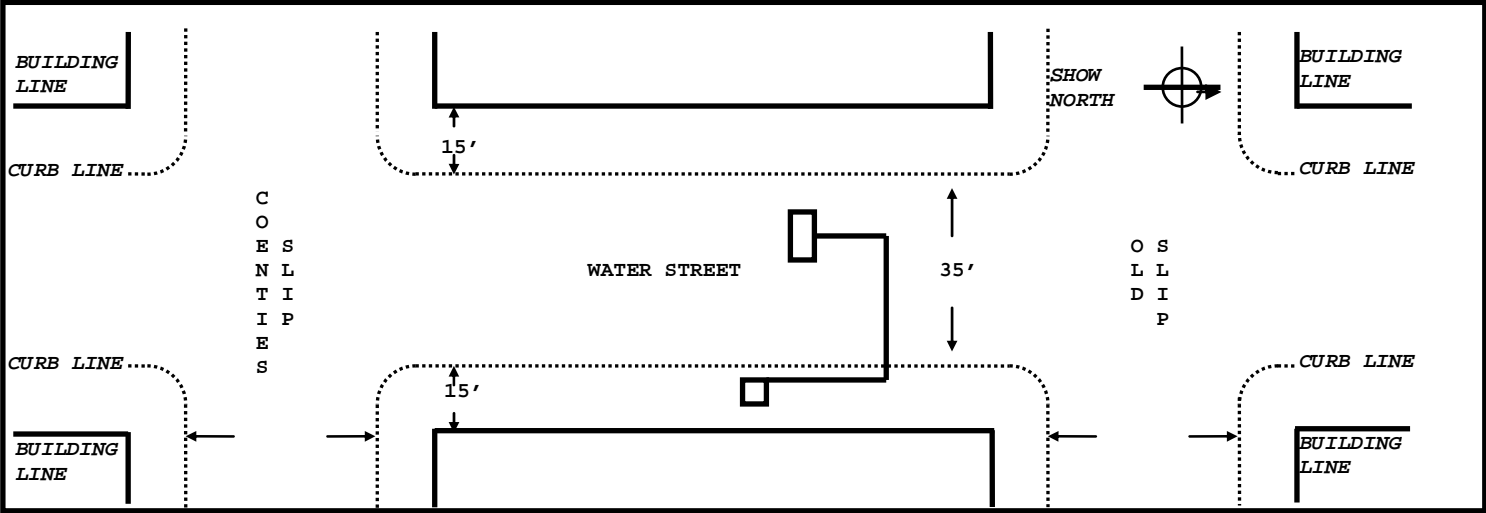
SECTION C: Type of Permit Requested

Check all permit types that you wish to apply for today based on your proposed work.

SECTION D: Work Zone Sketch

Provide a diagram of the proposed work location for which you are requesting a permit. Show all pertinent information including On Street, both Cross Streets, North Arrow, Sidewalk/Roadway widths and location of excavations or placement of construction equipment/material, etc. NOTE: If completing this form online, On Street, Cross Streets, North Arrow and Sidewalk/Roadway widths may be filled in, however the work zone sketch must be hand-drawn after printing this form.

EXAMPLE:



SECTION E: Permit Stipulations (For Official Use Only)

This area is for OCMC Project Managers' use only. This is where you will see what permit stipulations will be issued and printed on the approved permit(s). DO NOT WRITE IN THIS AREA.

SECTION F: Acknowledgements and Agreements by Authorized Representative of the Applicant

19. **Submitted By:** Print the name of the person who is submitting this application for review and approval.
20. **Tel #:** Provide a valid daytime telephone number of the person submitting this application.
21. **Signed By:** The person submitting this application must be an authorized representative of the applicant and must provide his/her original signature.
22. **Date:** Provide the date of application submittal.